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Focus On: Real-Time Internet Communications

36 Communication Made Real

These days, life runs at the speed of your Internet connection. We've gathered the latest on the vast potential of real-time communications to get you up to speed on chat, voice, and video interaction.

39 A Chat Room In Every PC

Instant messaging is one of the hottest tickets on the Web these days, in some cases even incorporating sound and video. We'll fill you in on the basics and give you a run down of the top five services and their features.

42 Cut Through The Chatter

Internet Chat isn't just geeks and scrolling text anymore; find out about chat software that lets you see and hear your online acquaintances and pick up a few tips on how to mind your chat room Ps and Qs.

46 Talk Is Cheap

Do you cringe each month when your long distance bill arrives? If you're not worried about hearing a pin drop, you can make your calls over the Internet for free (or very close to it).

49 Failure To Communicate

Don't let problems with your PC microphone or Web camera keep you from realizing the promise of cheap, worldwide Internet communication. We'll help you troubleshoot common complaints for both devices.

Reviews

14 Bigger Than Life

The five notebooks we reviewed came with computing power plus. Take a look at the impressive features that adorn these desktop replacements.

17 Hardware

Desktop Systems:
Hewlett-Packard Pavilion 7850 17

Modem:
Xircom SpringPort Modem 56 GlobalACCESS 18

Optical Drive:
Samsung SW-212 CD-RW Drive 12X/8X/32X 18

19 Hanging On Your Every Word

Word processors, typically bundled with office suites, are integral to many computing tasks. Here are four of the top processors and our assessment of each.

22 Software

Utility:
Tranxition's Personality Tranxport Professional 2.1 22

Security:
MooSoft's The Cleaner 3.2 23

Word Processing:
Screenplay System's Movie Magic Screenwriter 2000 23

PC Operating Instructions

26 Lines Of Communication

They use COM ports to talk to your computer. Here's how to enable a COM port and solve potential conflicts.

28 Tips For Using & Hiding The Taskbar

The Windows Me Taskbar is a little more versatile than previous Windows' versions.

General Computing

29 Immortal E-mail

Your stored e-mail messages are just as susceptible to hard drive crashes and viruses as other kinds of data files, but Microsoft Outlook has you covered.

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Master The Web

32 Gator Aid For Web Surfers

Gator fills out login screens and online forms for you automatically to take some of the repetitious typing out of your Web browsing.

35 Web Tips

Computing Basics

51 The Complete Cursor & Pointer

Imagine your Word document bereft of a cursor. Inputting information could get a little dicey. Small and easy to forget about, you're far more dependent upon cursors and pointers than you might imagine.

56 How Did They Do That? The Illusion Of 3-D Sound

Gamers have long benefited from the full effects of 3-D sound, and now you can, too. We'll show you how to position two- or four-speaker setups to take full advantage of the sound.

Office Computing

58 Hiring The Right VAR

Before budgeting for an IT (information technology) department for your small business, look into the services of a local VAR (value-added reseller) to see if it can meet your computing needs.

60 Format It & Forget It

Microsoft Word saves you a little time by presenting templates for often-used designs. You can also customize the templates to fit the needs of your unique letters and business documents.

Quick Studies

62 **Lotus 1-2-3**
Use SmartLabels For Quick Calculations

63 **Web Browsers**
Use Netscape's Search Menu

64 **Going Online**
GetYourOwnWebSite.com

65 **Microsoft Excel 2000**
Get A Better View

68 **WordPerfect 9**
Footnotes & Endnotes

69 **Microsoft PowerPoint 2000**
Perk Up Your Presentation With Online Help

70 **Print Shop Deluxe 10/11**
Work Out Some Kinks

71 **Quicken 2001 Deluxe**
Get Some (Real) Financial Advice

72 **Microsoft Money 2001 Deluxe**
Track Your Investments, Part I

73 **Microsoft Word 2000**
Use AutoText & AutoComplete

74 **HTML**
Hit The TARGET

76 **Quick Tips**

Beyond The Basics

78 Do-It-Yourself DSL

Getting set up with high-speed Internet access can be pricey, but you can save a few bucks if you're comfortable installing a little hardware and adjusting your PC's network settings.

Troubleshooting

82 The Puppet Master

Chances are, there's an EIDE controller pulling your hard drive's strings. We tell you how to tell if it's losing control, and how to install a better one.

86 Examining Errors

In this new monthly feature, we'll examine your errors. We're not looking for personal inadequacies; we're trying to help solve those annoying, recurring errors, such as Invalid Page Fault At Kernel32.DLL.

Plugged In

88 Can You Trust Your PC To A Free Firewall?

We've found a few pleasant exceptions to the "no such thing as a free lunch" adage; here are a couple of free software firewalls, for instance.

91 Microsoft Office's Storage Alternatives

Web Folders let you store and share files online, safely and conveniently off of your hard drive. You can even share data files, such as Access, with co-workers.

Tidbits

98 Catch The Right Bus

And you thought your commute was tough. Your data travels around inside your PC using a network of buses and nearly all of them have different data transfer rates.

Each Month

7 **Technology News & Notes**
96 **Find It Online**
100 **Q&A**
106 **Action Editor**
107 **Glossary**
108 **Editorial Comment**

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Reviews

Hardware

Hard Drive: Seagate Barracuda 180 181.6GB (See **barracuda.**)

Internet Appliance: Honeywell WebPAD (See **webpad.**)

Handheld: Palm/PTN Media Palm Vx Claudia Schiffer Edition (See **schiffer.**)

Hard Drive: Maxtor 1394 External Storage Unit 80GB (See **maxtor1394.**)

Software

Financial: Intuit's QuickBooks Pro 2001 (See **quickbooks.**)

Utility: Higher Ground Software's Hard Drive Mechanic Gold (See **mechanic.**)

PC Operating Instructions

Teaching Linux To Share

We'll show you how to configure your Linux system so you can share files across a network. (See **linuxshare.**)

How To Identify Files

See our online chart for information about what Windows 2000 files you can safely move, alter, or delete. (See **2000files.**)

PC Conversations

Pervasive Computing: It's Everywhere!

Microsoft's Ubiquitous Computing Group is working on the Easy Living Project, which envisions transferring trust from stationary machines to mobile networks to accomplish computing needs without sitting at a desk. (See **easyliving.**)

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High-Tech Dream Catcher

Technology plays such a big role in nearly every aspect of our waking lives that it was only a matter of time before it began to influence the hours we spend asleep. An invention designed and sold by a California company called the Lucidity Institute (http://www.lucidity.com) uses electronic sensors, lights, and sounds in an effort to help users become more aware of and, to some extent, direct the paths their dreams take.

The device is the NovaDreamer, and it watches for signs that users have entered REM (rapid eye movement) sleep, a period of sleep when the human mind is extremely active and most dreams occur. As the name suggests, REM sleep is usually characterized by a great deal of very quick eye movement. The NovaDreamer's infrared sensors detect these movements and use them to trigger a series of visual and auditory signals that its inventors say are detectable by users who are dreaming.

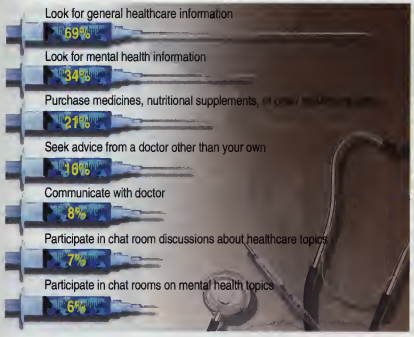
The idea is that with the help of such cues people can become aware of their dreams as they occur, entering a state called lucid dreaming. The science behind lucid dreaming is inexact at best, but its proponents claim it can have a number of positive effects on people's lives. Dr. Stephen LaBerge, a research associate at Stanford University's psychology department, founded the Lucidity Institute in 1987 and has written several books on lucid dreaming. In 1993, LaBerge wrote, "Because dream activities produce real physiological effects, lucid dreaming may be useful for facilitating health and healing, as an extremely potent form of mental imagery."

The NovaDreamer alone won't let you achieve lucid dreams; apparently the process involves a considerable amount of mental preparation and training to be successful. But despite this and the fact that we can't directly vouch for the device or Dr. LaBerge's work, we must admit that it's an interesting use of technology.

A more sophisticated apparatus (also available from the Institute) called the DreamLight does everything the NovaDreamer does and more, thanks to its onboard computer. It records information about your sleep patterns and how much time you spend in REM sleep, helps you keep track of how many times you remember your dreams, and can even wake you up in the morning,

A Dose Of Internet Medicine

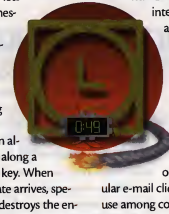
An increasing number of people are turning to the Internet for a variety of health-related information. Naturally, insurance companies and healthcare providers want to know what consumers look for online, and a recent report from eMarketer sheds some light on the subject. The company's March 2001 eHealth report combines research results from more than 100 sources.



Illustrations: Andrea Schultz

Outlook Self-Destructs

On March 20, Microsoft and Disappearing Inc. announced an agreement to incorporate the latter's Disappearing Email technology into Microsoft Outlook X, the upcoming version of the popular e-mail client program. Disappearing Email lets users send e-mail messages that self-destruct after a predetermined time elapses. The application encrypts each message using Counterpane's Blowfish encryption algorithm and sends along a 128-bit encryption key. When the self-destruct date arrives, special program code destroys the encryption key, leaving the message an unreadable mass of gibberish.

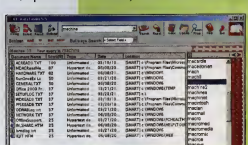


Disappearing Email and similar products have been around for some time now. Businesses like them because they provide a measure of protection from liability and loss of confidentiality where sensitive material is concerned. Last year during its antitrust trial, the Department of Justice used a number of Microsoft's own internal e-mail messages as ammunition against the software company. It's hardly surprising, then, that Microsoft would choose to add such a feature to Outlook, which is one of the most popular e-mail client applications in use among corporations. The Disappearing Email feature and the newest version of Outlook will come with Microsoft's upcoming Office XP.

Hanging Ten On The Company Dime

It's a grim reality of the information age that the very tools employees need to be more productive—Internet access and e-mail—often lead to drastic reductions of productivity. Career Web site Vault.com (http://www.vault.com) surveyed 670 employers and 451 employees in October. The survey found that although 25% of workers use the Internet responsibly (only about 10 minutes per day of personal use), a full 13% report regular abuse of their access (surfing for two hours or more per day). This is clearly a problem, and companies continue to explore methods of policing employees' use of company resources for personal use.

Software companies, such as CONQWEST and SurfControl, have stepped in to provide applications that give employers the ability to regulate Internet and e-mail use without having to take on extra staff to do so. CONQWEST's new e-Minder software monitors Internet, e-mail, and computer usage and helps businesses establish and maintain their own policies regarding what is acceptable. The software is economical at $5 per user for a 1,000-seat implementation, and the desired effect is twofold, encompassing both increased productivity and decreased company liability stemming from employee misuse.



REVIEW

Get Your (Word) Hunting License

If you're like most people, you've probably saved a file on your PC, only to find later that you couldn't remember where you put it. Or maybe you've created hundreds of documents and are looking for one or two on a particular subject. Either way, there are a few programs that can help you find what you're looking for, even on today's enormous 30GB to 80GB hard drives. One that's recently become considerably more affordable is SilverLakeTech.com's PC Data Finder 5.5.

PC Data Finder lets you index your PC's drives and run searches for material you're looking for. Once you've installed the program, indexing your machine is as easy as highlighting the drives and clicking the Index button on the main toolbar. The process may take a few minutes if your drives are large and full, but when it is finished, you can find anything in a matter of seconds. Run simple keyword searches by typing the word you're looking for or selecting it from a tabbed index or perform Boolean searches with operators, such as and, or, not, and near.

The program quickly brings up a list of files containing the word or words you're looking for, in order of their relevance scores and including creation dates, paths, and filenames. You can, of course, open the desired file by double-clicking its icon. A number of familiar interface elements common to Windows applications, including toolbar buttons labeled with big, colorful icons, make the program easy to use, and a comprehensive Help feature provides pointers if you get stuck. You can search for words in several types of documents, including Word, Acrobat, Excel, PowerPoint, WordPerfect, Lotus 1-2-3, QuattroPro, and others.

The program used to cost $99.95, which is probably a bit much unless you rely on it to keep business-related information close at hand, but SilverLakeTech.com pared that figure down to $39.95 (the company also offers multi-user site licenses). You can download the full 1.49MB program online or try a free, 15-day demo version before you buy.

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Old Payphones Never Die...

They are, however, fading away in the southeastern United States. BellSouth announced in February that it would exit the payphone business effective immediately and plans to complete the process by 2002, marking approximately 143,000 phones for removal or reassignment. The company says its two-year notice will give local providers time to look either for alternative technologies or new providers from among independent payphone companies in the region.

The decision is a result of sharp declines in payphone use over the last several years, including an especially drastic drop-off since 1998. BellSouth will concentrate instead on newer, more viable businesses, such as broadband Internet service, digital networks, and domestic and foreign wireless phone service. Wireless phone service is of special importance in the company's decision to move away from a communication device that has been a staple for travelers, shoppers, and commuters for more than a century. Cellular phones are largely responsible for what has become a societal shift away from payphones, and experts say the trend should continue apace in years to come.

Gartner Dataquest says that despite a slightly slower rate of growth in unit sales than in 2000, mobile phone sales will increase by 23% in 2001 over last year's numbers (mobile phone sales in 2000 grew 38% over those in 1999). That means companies around the world will sell more than half a billion wireless phones (506.5 million, to be exact) this year, an astounding number given the world's current estimated population of just more than 6 billion people. Dataquest predicts this growth will continue through 2005, when annual mobile phone sales will reach 740 million units worldwide.

With numbers like these, it's not hard to see why payphones are falling by the wayside. Mobile phones give users a greater degree of freedom, letting them talk on the go rather than requiring them to remain tied to one spot. Wireless phone service is also proving more cost-effective for business users and frequent travelers. It has become so competitive that some consumers have done away with local phone service at home, relying instead on their cell phones for all their communication needs.

REVIEW

Variation On A Theme

Logitech's MouseMan mice have generally been well ahead of the curve technologically. Two models ago, Logitech introduced optical sensor technology, making the MouseMan impervious to dust and debris. We loved the MouseMan Optical but wished for a cordless version.

Logitech answered our prayers, but that comfortable MouseMan shape got lost in the shuffle. The Cordless MouseMan Optical isn't uncomfortable, but the Dali-esque ergonomic shape has given way to a standard look and feel.

Cordless MouseMan Optical also has a smooth rubber scrolling wheel, making it more susceptible to slippage or accidental clicking beneath damp or oily fingers. Other than these changes, however, the new mouse is every bit a MouseMan. It includes rubberized grips along both sides for comfortable control and a thumb-activated button on its left side that you can configure to do just about anything (as you can both its standard buttons and wheel/button).

Logitech packs in version 9.72 of its now-venerable MouseWare software. Setup was easy, and MouseWare offered helpful advice, warning us to place MouseMan's RF (radio frequency) receiver at least 8 inches or 20 centimeters away from other electrical devices. If you ignore it, you'll find your Windows pointer moves erratically and isn't easy to control (otherwise MouseMan is fast and accurate).

We believe the old saw about not fixing what ain't broke, so the new shape and smooth wheel are somewhat baffling. The newest MouseMan also carries a premium price tag at $75, but like its predecessors, it's a great mouse.

Cordless MouseMan Optical

$74.95
Logitech
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http://www.logitech.com

Duly Quoted

"It would be reckless and irresponsible. What do you do with humans who are born with half a kidney or no immune system?"

— Dr. Rudolph Jaenisch, a professor of biology at the Whitehead Institute at the Massachusetts Institute of Technology, commenting on the potential for human cloning in light of recent findings that cloned animals often have serious developmental problems. (ABC News)

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A Slight Edge

Handspring's latest PDA (personal digital assistant) has gone on a diet. The Visor Edge's waistline is just less than one-half inch, but that does not mean this trim little package is slim on features. The Visor Edge uses the Palm OS (operating system) 3.5.2 and comes with 8MB of memory. Even better, this version of the Visor is still compatible with Springboard expansion modules, and it is also rechargeable, so you won't have to cart around a battery of batteries with you ($399; (888) 565-9393; (650) 230-5000; http://www.handspring.com). ■

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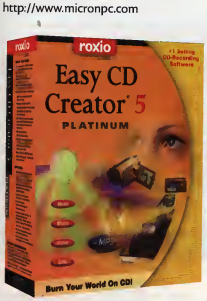

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From Our Other Issues

Here are some of the top stories from *Smart Computing's Guide* and *Learning Series*. These issues are available on newsstands now, and the complete text is also available on our Web site at http://www.smartcomputing.com. Look for links to these issues on the home page's left side. Direct links to each article appear in the text below.

Learning Series:

Windows Tips

This issue is packed with operating system tips that will help fine-tune any PC using Windows 95/98/Me/NT /2000. Explore hundreds of troubleshooting techniques and performance-enhancing tricks that will help you get more out of your system. We also take a peek at Windows XP, the next operating system from Microsoft. To access the following articles online, type http://www.smartcomputing.com/learning/windowstips/ and add the bold word at the end of each news items. (Volume 7, Issue 5)

The files in your computer can become a lot like those mysterious stray socks that always seem to come out of the dryer without a partner. Before you know it, you have a drawer full of one-foot orphans. Fortunately, putting your files back in an organized semblance is relatively easy using the folder, Find, renaming, and other tools Windows offers. See **files**.

Locking the doors to our homes and cars to unwanted guests is second nature to most of us. So why do so many of us fail to take the same kind of precautions to guard the data on our computer systems? Using passwords, personal firewalls, and other security software are easy and effective methods for keeping your personal information out of the hands of strangers. See **security**.

Adding hardware components to your computer is easier if you know how to use the tools built into Windows. Learn how to install different types of internal and external devices, no matter what version of Windows you use. More advanced PC users may want to set up Hardware Profiles to prevent conflicts between devices. See **hardware**.

Microsoft plans to create a new look for Windows when it releases XP, its next version, later this year. XP includes features that integrate with Microsoft's new .NET Initiative, such as a Remote Desktop Connection that lets you access other PCs online. New utilities include Fast User Switching, a program for saving and switching among different user profiles. See **xp**.

Guide Series:

PC Today

This month we examine the services that are offered at the best online photography sites, discuss CD and DVD drives, and explore Palm and Windows CE applications. To access articles online, type http://www.smartcomputing.com/guide/pctmay01/ and add the bold word at the end of each new item. (Volume 9, Issue 5.)

CD-RW (CD-rewriteable) technology lets you assemble CD music compilations in minutes (that used to take hours on tape), back up important data, and still play all of your old music and CD-ROMs. With CD-RW drive prices now well under the $200 mark and generic write-once CD-R (CD-recordable) media selling for as little as five cents each in bulk (after rebate), nearly all computer users can afford the technology. See **opticalwriters**.

Palm-sized computers were a tough sell in the mid-1990s. While some devices, such as the Apple Newton, had a cult following, most palm-sized computers failed. In 1995, Jeff Hawkins was looking for financial backing for his small startup, Palm Computing, and found it from US Robotics. US Robotics bought the young company and provided the funding for the original Palm Pilot. Although initial sales were low, the Palm Pilot caught on to become the first major success in the palm-sized market. See **pdas**.

You want to e-mail photos to a friend. No scanner? No digital camera? No problem! Online photo sites digitize and store your still photos on the Web quickly, conveniently, and cheaply. And if you can capture or create digitized images yourself, all the better. One of the top reasons consumers digitize their photos is to e-mail them to friends and family. With the right equipment, e-mailing digitized photos can be a do-it-yourself project. See **photography**.

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Bigger Than Life

A Hard Look At Five Desktop Replacement Notebooks

There are three main types of units that make up the bulk of today's notebook PC market: mininotebooks, thin-and-light notebooks, and desktop replacement units. Each type has merit, but if you're looking for the pinnacle of portable PC performance, a desktop replacement notebook is the only way to go.

As the term desktop replacement suggests, many users purchase these mobile behemoths because they spend considerable amounts of time both in and out of the office and want a PC that can do double duty. The units we rounded up for this article fill that bill handily. They all have 15-inch TFT (thin film transistor) displays, 850MHz Pentium III processors, lots of RAM, and DVD-ROM drives. They also each cost in the neighborhood of $3,000 or more, but when you consider that you're replacing two computers with one, the sticker shock tends to recede a bit.

So grab your favorite beverage, put your feet up, and read on, keeping in mind that although good things may come in small packages, sometimes bigger is just better.

How We Tested

In order to quantify the performance of our review units in several areas, we ran the BAPCo SYSmark2000 benchmarking software. SYSmark2000 includes a series of tests that evaluate a PC's ability to perform everyday tasks, such as running office productivity software (spreadsheets, databases, word processing, etc.) and creating and running multimedia applications. We also subjected our notebooks to MadOnion.com's Video2000, a series of tests that focus specifically on how well they process high-quality graphic images. Video2000 provides a set of scores that indicate how well a notebook's video adapter, CPU, memory, and motherboard work together to accomplish tasks such as playing DVD movies.

And because we use computers every day ourselves, we understand that there's more to a PC than speed and flashy performance. In addition to running scientific tests, we spent some quality hands-on time with each unit in order to evaluate its keyboard, display, pointing device(s), speakers, and other aspects of its design.

Buying Tips

1. **When shopping for a notebook for use with sophisticated graphics applications, be sure to pay close attention to what kinds of video chipsets each comes with, as well as how much video RAM they have.**
2. **If you're looking at notebooks containing Pentium III processors, be sure to get one with at least 128MB of RAM; according to our test results, units with just 64MB generally run considerably slower, sometimes as much as 30 to 40%.**
3. **For best picture, look for a notebook with a UXGA (Ultra Extended Graphics Array) display and video adapter that run at resolutions up to 1,600 x 1,200.**
4. **Our research indicates that ATI Technologies' mobile video chipsets generally perform at a much higher level in a variety of applications than S3 mobile video controllers with equal or greater amounts of video memory.**
5. **Notebooks are almost always tougher to upgrade than desktop PCs, but buying one with a modular device bay for optical drives, hard drives, and batteries will give you more configuration options down the road.**

Acer TravelMate 739TLV

$3,499
(800)733-2237
(408)432-6200
http://www.acer.com/aac

Acer's TravelMate notebooks, like product lines from most manufacturers, cover a wide range of shapes and sizes. The 739TLV is the company's top gun, combining a premium feature set with some interesting innovations like a built-in fingerprint scanner for stalwart protection of your data. And, in case you use your notebook in an office and may want access to your company network, Acer ships it with both a 56Kbps (kilobits per second) modem and an Intel 10/100-Mbps (megabits per second) network adapter.

The 739 measures 1.4 inches high (when closed) x 12.7 inches wide x 10.7 inches deep and weighs a manageable 7 pounds, which makes it the

thinnest and lightest of the units in this roundup. It has a remarkably stiff case that looks very professional and should serve its components (especially its display) well during travel. Its excellent, 15-inch XGA (Extended Graphics Array) display gets the job done right thanks to its bold color and impeccable definition. We weren't quite as taken with the speakers on the back of its lid panel, however. They sounded decent enough at moderate volume levels, but got very scratchy when we turned them up much higher than about 75% of their volume capacity.

Our estimation of the machine rose again as soon as we began using its input devices. The keyboard is spacious and comfortable, and everything seems to be right where it belongs. The touchpad beneath it is as good as any we've used, and we especially like the scroll button Acer added for navigating large Web pages and documents.

The 739's SYSmark2000 scores were noticeably lower than those of the others in this roundup; it turned in scores of 163 in Internet Content Creation, 132 in Office Productivity, and 145 overall. Its overall score was 14 points lower than the closest unit's, despite the fact that all five notebooks had 850MHz Pentium III CPUs, 128MB of RAM, and all but one had the same motherboard chipset (Intel's popular 440BX). Its Video2000 marks were also lower than those of all but one of its competitors. In other words, the 739TLV is a solid notebook that has some great features (especially the fingerprint scanner), but if performance is your passion you should probably read on.

Dell Inspiron 8000

$2,910
(800) 999-3355
(512) 338-4400
http://www.dell.com

Dell has recently made enormous strides in the notebook department. Its portable PCs have always been decent, but Dell has really turned up the heat on its competition with the advent of its newest Inspirons. The 8000 is a fantastic notebook PC, and at just $2,910 (price as tested), it's also the most affordable unit in this article. The company began offering a 1GHz version of the notebook just as we went to press, but you'd be hard pressed to find any task our 850MHz unit couldn't handle.

The 8000 weighs a solid 7.96 pounds and measures 1.75 inches high x 13 inches wide x 10.8 inches deep. It has a snazzy look to it, due partly to the big chrome Dell logo and Inspiron name badge on the lid panel, and partly to the pop-out accent panels in the wrist rests. The panels that come with it match the 8000's Midnight Grey case, but you can order panels in six colors (Iridescent Bronze, Iridescent Jade, Golden Yellow, Storm Grey, Tahoe Blue, or Royal Purple) for a little variety.

Another interesting feature of the 8000 is that it can accommodate two optical drives (CD-ROM, CD-RW [CD-rewriteable], DVD, etc.) simultaneously in addition to its floppy diskette drive. Our unit didn't come with two, but we can imagine it would be handy to have both a DVD or CD drive and a CD-RW drive. Another thing the 8000 really has going for it is Dell's handy Resolution Assistant, a feature that lets you troubleshoot your Dell over the Internet with the touch of a button.

Our review unit had a gorgeous UXGA (Ultra Extended Graphics Array) display that ran flawlessly at resolutions up to 1,600 x 1,200, thanks in part to its ATI Mobility video chipset with an incredible 32MB of video memory. Its speakers were decent, as was its keyboard, and we liked Dell's decision to include both a pointing stick and a touchpad. The notebook did a good job with SYSmark2000, producing scores of 164 in Internet Content Creation, 158 in Office Productivity, and 161 overall. As you'll see, these weren't the highest marks we got, but a 161 is nothing to sneeze at; dollar for dollar, the Inspiron 8000 is an amazing buy.

IBM ThinkPad A21p

$3,499
(888) 746-7426
(914) 499-1900
http://www.ibm.com

IBM's A series ThinkPads are some of the best-appointed, most functional notebooks we've ever used. Our A21p arrived with the same processor and memory that each of our other desktop replacements had, but had a mammoth 32GB hard drive, an excellent UXGA display, and an ATI video adapter with 16MB of video memory. At $3,499, its price falls about in the middle of the units in this issue, which is remarkable in and of itself; a couple years ago, ThinkPads routinely cost several hundred dollars more than the competition.

The A21p is big and heavy, measuring 1.8 inches high x 13 inches wide x 10.5 inches deep, and weighing 7.9 pounds. Its austere black case with its titanium-composite lid is rock solid, and the speakers above its keyboard sound nice and clear. The keyboard in question is (as usual) luxuriously big and comfortable, and the obligatory red TrackPoint pointing stick is as good as any pointing device we've used.

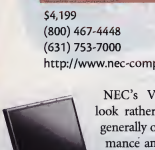
SYSmark2000 was no problem for the big ThinkPad, and it breezed through Video2000 as well. Its SYSmark scores of 174 in Internet Content Creation, 149 in Office Productivity, and 159 overall weren't the highest we received, but they were competitive. Its Video2000 Video Marks score of 2,256 was the highest in this roundup, despite giving up 16MB of video memory to the Inspiron 8000.

In past years, IBM didn't have much competition in the desktop replacement category, but times have changed, and Dell's Inspiron 8000 nearly toppled the

A21p. In the end, though, despite a two-point overall performance score deficit and the fact that it costs nearly $600 more, we had to give credit where credit is due. The A21p is so well made and so nice to use that we'd still choose it over pretty much anything if we could pick one to take home, and that's why it's this month's Smart Choice.

NEC Versa LXi

$4,199
(800) 467-4448
(631) 753-7000
http://www.nec-computers.com



NEC's Versa notebooks look rather plain, but they generally offer solid performance and (thanks to the VersaBay modular device bays) plenty of options for configuring them. The LXi we reviewed came with all the bells and whistles, including a 20GB hard drive, DVD, a 56Kbps modem, and an Intel 10/100Mbps Ethernet network adapter.

The LXi is the heaviest of our desktop replacement guinea pigs at 8 pounds even and is also the thickest at 2 inches high when closed. It measures 12.8 inches wide x 10.6 inches deep. Its case is dark gray, with a magnesium-alloy lid panel that is just about bullet proof, and its controls and expansion/peripheral ports all seem to be where they belong. Like the rest of our subjects, it has a 15-inch TFT display that is extremely easy to look at. The speakers located at either end of its front edge provide adequate volume and clarity, although a bit more bass would be nice.

We were very happy with the LXi's keyboard and touchpad. Both were comfortable and responsive, and the only hitch was that the touchpad was a bit sluggish at its default speed setting. Once we juiced it up a bit from within Windows' Control Panel, however, it performed admirably. While we're discussing performance, we should point out that the LXi is an interesting study in contrasts. Its basic performance scores were great, including SYSmark2000 scores of 173 in Internet Content Creation, 156 in Office Productivity, and 163 overall, but its Video2000 scores were the worst we've had from an 850MHz notebook.

The blame most likely belongs to its S3 Savage/IX video control chipset, although other factors may be involved. Our other contestants all came with ATI Technologies' popular RAGE Mobility chipsets, and even those with half as much video memory (the LXi's comes with 16MB) produced higher Video Marks scores. In the final analysis, the Versa LXi has lots of things going for it, but its poor multimedia performance is tough to overlook, especially given its competition and $4,199 asking price.

WinBook Z1

$3,019
(800) 254-7806
(614) 850-3000
http://www.winbook.com

WinBook has taken its sales model to the next level with a redesign of its Web site that gives you more freedom to customize your notebook than ever before. WinBook has wisely chosen to move away from its traditional stock model selection to a Dell-like set of pull-down menus that let you choose the components you want every step of the way.

The company's Z1 burst on the desktop replacement scene in March, and its top-shelf performance impressed us right away. The 850MHz model we received for this article came with a 30GB hard drive, an SVGA (Super Video Graphics Array) 15-inch display, 128MB of RAM, and 16MB of video memory, all for $3,019. This makes it cheaper than all but one of our hefty contestants, and as we'll see in a moment, WinBook gives you lots of bang for those bucks.

The WinBook Z1 weighs 7.42 pounds and measures 1.65 inches high x 13.47 inches wide x 10.9 inches deep. Its squarish, dark gray case is pretty standard WinBook fare and offers its electronic innards a fair degree of protection from the rigors of travel. Its display is quite good, although the UXGA screens of the Inspiron and ThinkPad are better. The speakers on its right and left edges aren't overly impressive, although they produce good sound quality up to about 75% volume. The Z1's keyboard and touchpad are functional and easy to get along with, so input isn't a problem.

Our Z1 850 produced the highest SYSmark2000 scores we've seen to date, including a 175 in Internet Content Creation, a 167 in Office Productivity, and a robust 170 overall. Its Video2000 scores were good as well. It garnered a 2145 Video Marks score, coming in third behind (once again) the Inspiron and the ThinkPad. Obviously, performance is not a problem where the Z1 is concerned. Its multimedia and input equipment pales a bit in comparison to some notebooks, but we think that if you're looking for high-octane computing and an affordable price tag, the Z1 is a no-brainer.

Photo Finish

Choosing a clear-cut winner among these five notebooks was extremely tough. They all have some very admirable traits, and any one of them is more computer than many users will likely ever need. Dell's Inspiron 8000 made it a very close race, coming in at runner-up. And although WinBook's Z1 doesn't possess quite as much polish as our winner, its raw muscle and relatively modest price make it a compelling option at third place. Having said all that, however, IBM's A series notebooks are still the best desktop replacement units we've ever used. That and the fact that the A21p costs about $75 more than the *average* price of our hefty portables convinced us to give it the Smart Choice nod. ❚

by Chris Trumble

Desktop System

Rock Your Office Programs; Can The Sound

Pavilion 7850

Hewlett-Packard
$999
(888) 999-4747
(650) 857-1501
http://www.hp.com

The Hewlett-Packard Pavilion 7850 is a good buy at less than $1,000. It includes some nice hardware components, and it's statistics are solid. The Pavilion 7850 has to cut a couple of corners to stay in this price bracket, but it's still a decent PC.

The heart of the Pavilion 7850 is the 933MHz Intel Pentium III processor, and Microsoft's Windows Millennium operating system is its soul. The system also has a speedy 133MHz system bus. Our test machine came with 128MB of SDRAM (synchronous dynamic RAM) preinstalled, and you can jack that up to a total of 512MB.

The Pavilion 7850 uses Intel's less-than-desirable 82810 graphics chip, but the system's speedy processor picks up some of this graphics chip's slack. The AGP (Accelerated Graphics Port) 2X chip uses 11MB of shared system SDRAM. We'd prefer a graphics chip from ATI or NVIDIA, but it's hard to get that kind of graphics power in a system for less than $1,000.

The Pavilion 7850 has a 4X4X24X CD-RW drive, which we think is a good feature. Many new CD-RW drives can write at well over 8X now, but you can live with 4X. The system also has a 48X CD-ROM drive and the always-handy floppy diskette drive.

One of the things we like best about this system is its whoppin' 40GB hard drive. You can store several Wagner symphonies or the entire Talking Heads canon of music on this hard drive thrice over.

The Pavilion 7850 doesn't come with a monitor, but Hewlett-Packard shipped a 17-inch Pavilion MX 70 monitor with the system, which you can buy for $399. You may want to invest that money in a better sound card and speakers, though. The Pavilion 7850 has an integrated Crystal sound card, which is so-so, and a pair of small Polk satellite speakers, which are less than so-so.

HP skimps on the sound but includes both a 56Kbps (kilobits per second) modem and an integrated 10 /100Base-T network card in the system, so you can connect to the Web through a phone line, DSL (Digital Subscriber Line), or a network.

The Pavilion 7850 has room for growth but not much. The mid-tower case's interior is a little cramped, but you can get to the major components without much trouble. One thing that is troubling is the lack of an AGP slot, so if you want to upgrade to a faster AGP card, well, you can't. One of the three PCI (Peripheral Component Interconnect) slots is available, however. The system has three 3.5-inch drive bays, one of which is open, and two 5.25-inch drive bays. The system also has two serial and USB (Universal Serial Bus) ports and one parallel port.

The Pavilion 7850 includes a respectable software package. You'll get the popular MusicMatch Jukebox, MS Works 6, Roxio's (formerly Adaptec's) Easy CD Creator 4, and Trellix Web.

We've found that most systems that use an integrated Intel graphics chip don't do very well in our benchmark tests. The Pavilion 7850 was an exception to that rule. For example, the Pavilion 7850 did quite well in our SYSMark2000 test. Its overall score was 128, which is pretty high for a system in this price category. The system's Office Productivity score was 116, and its Internet Content Creation was a stellar 146. If you use office applications a lot, this system will run them well. The Pavilion 7850's Video2000 total score of 1,231 wasn't quite as impressive as the SYSMark2000 scores, and the 3DMark2000 score of 788 certainly didn't impress us.

Despite the Pavilion 7850's low 3DMark2000 score, the system managed to run Quake III well enough, at least in the lower resolutions. The game ran smoothly most of the time, and the sound seemed to be better than when listening to audio CDs.

The audio CD portion of the test wasn't very good. We listened to about two tracks through the tiny (and somewhat tinny) Polk speakers, and by then we'd had enough. The system doesn't come with a subwoofer, of course, and these speaker wannabes produce practically no bass at all, which we simply don't like.

We recommend this system to those who want a solid computer for less than a grand, especially if it's for a home or small office. The Pavilion 7850 isn't really designed for powerful multimedia activities, but it rocks when running office applications. ■

by Michael Sweet

Modem

Pack's Size Problematic

SpringPort Modem 56 GlobalACCESS

$148.99
Xircom
(800) 438-4526
(805) 376-9300
http://www.xircom.com

A PDA (personal digital assistant) can be the perfect solution for frequent travelers who need basic Internet access. With an add-on modem, you can connect to the Internet and surf the Web or download your e-mail. You can even use a modem to synchronize your PDA with a corporate or home PC.

The Xircom SpringPort Modem 56 GlobalACCESS is a V.90-compatible modem capable of receiving data at speeds of up to 56Kbps (kilobits per second). The modem is actually a Springboard module for use in Handspring's Visor line of PDAs. The module slides into a slot in the back of the Visor and installs all of the necessary software. Seconds after inserting the module, the Visor runs a quick self-test on the modem to ensure it's working, then returns you to whatever screen you were on previously. If it's the first time you've used the modem, a setup wizard will let you configure your modem settings.

The module includes 800KB of internal memory, which houses a number of software applications, including AvantGo, MultiMail, and the SpringPort utility software. AvantGo lets you subscribe to various channels that you can download to your PDA and read without an Internet connection. You can also use the software as a Web browser for surfing the Internet when connected using the modem. Xircom includes a full version of MultiMail.

The modem works well and was the first V.90 modem available for the Handspring Visor. The unit includes an odd-sized battery pack, consisting of three AAA alkaline batteries so the module doesn't draw power from your Visor's batteries. Modems are notorious for draining batteries, so this is a nice feature. The module is not compatible with most Visor cases. The odd shape of the module adds a bit of extra weight and makes it kind of awkward to carry around in your pocket. ■

by Chad Denton

Optical Drive

One Smokin' CD-RW Drive

It's always nice to get more than you paid for. We have become so accustomed to products with advertised specifications that far outstrip their tested abilities that we're floored when we find a sleeper.

Samsung claims its SW-212 12X/8X/32X (record/rewrite/read) CD-RW (CD-rewriteable) drive can sustain a read rate of 4,800KBps (kilobytes per second) and access a random point on a CD in 100ms (milliseconds). We'll have to call that a load of bull because the CD Tach 98 2.00 benchmarking utility puts the Samsung's average maximum read rate at 4,874KBps and the average random-access time at 76ms. If these figures are correct, this drive is *smokin'*.

We tested this internal drive as a master device on the secondary EIDE (Enhanced Integrated Drive Electronics) channel. Our test system was a 450MHz Pentium III IBM PC with 128MB of RAM and Windows 98SE. Overall, the Samsung netted a 3,671-KBps average read rate for a weighted average drive rating of 21.5X. We then wrote a 427MB folder to a CD-RW in 8:21 (minutes/seconds) and to a CD-R (CD-recordable) in 5:08. These transfers work out to 852KBps and 1,386KBps, respectively. All of these scores are top-notch.

Our Samsung SW-212 test model came with Roxio (formerly Adaptec) Easy CD Creator 4 and DirectCD 3 software bundle. These utilities will let you make data backup or music CDs, copy CDs, and drag-and-drop files to and from CD-RWs. By the time you read this, the SW-212 might be bundled with versions 5, adding great new features and correcting a few annoyances.

The SW-212's sole flaw is that it does not support BURN-Proof technology that averts buffer underrun errors, which make CD-Rs unusable. This is a shame because most buffer underruns occur at the higher write speeds that make this Samsung shine. You may not be able to enjoy the SW-212's high write speeds if using them results in coasters. Of course, the Samsung's 8MB cache buffer is about four times as big as most CD-RW drives' buffers, so perhaps this helps it keep the data flowing during a fast write.

The SW-212 supports virtually all CD formats and Windows 95/98/Me/NT 4.0/2000. Samsung says the drive will last for around 125,000 power-on hours. ■

by Marty Sems

SW-212 CD-RW Drive 12X/8X/32X

Samsung
$149
(800) 726-7864
(201) 229-4000
http://www.samsung electronics.com

Hanging On Your Every Word

Our Definitive Word On Word Processors

The word processor is undoubtedly one of the most widely used programs in computing. Almost all computer users have some sort of word processor on their systems. We use them to write letters and reports, create resumes and simple brochures, and perhaps even to produce the Great American Novel. A computer without a word processor is like a Twinkie without a creamy center. Clearly, something's missing. A good word processor is full of the features and tools you need to create professional, great-looking documents.

In this roundup we'll review some of the top word processors available. All of the word processors in this review are part of an office suite, so you may not be able to buy them separately (the sole exception, Microsoft Word, is available as a standalone application). Still, we wanted a first-hand look at the top word processors, regardless of whether they were sold separately. We'll tell you what we think of each one, and then we'll tell you which word processor is the best of the bunch.

We installed and tested the word processors on a 450MHz Pentium III system with 128MB of RAM. We opened several pages of text in each program and started playing around with it. We were particularly interested in how easy each program was to use and how intuitive each interface was. We also checked the tools and templates in each program. We were looking for a program that was powerful, yet easy to use.

Word Pro 9.6

$472 (SmartSuite 9.6, cost for new user)
Lotus Development
(800) 465-6887
(617) 577-8500
http://www.lotus.com

Lotus Word Pro 9.6 is a powerful word processor that has a smooth interface we really like. It has one toolbar at the top of the document and another at the bottom of the screen. You can open more toolbars along the left side of the screen.

The top toolbar contains icons for opening and saving documents, cutting and pasting text, inserting tables, and so on. One feature that sets this program apart from the rest is the collection of Cycle icons in the top toolbar. There are several icons for cycling through the attributes (Bold, Italics, and Underline), typeface, font size, and other settings. All you have to do is highlight some text and click the icon to cycle through the various options. The icon for attributes is the most practical one in the package in our opinion.

The toolbar at the bottom of the screen is even more practical. It contains a series of icons and list boxes for the settings you'll change most often: font selection (called Typeface in this program), font size, text color, and Bold, Italics, and Underline, as well as

Buying Tips

1. **Consider how powerful your word processor needs to be before you buy. If you only need a basic word processor for writing letters and flowery poetry, you don't need to spend $300 on a word processing program or office suite.**
2. **If you decide to buy a whole office suite, pay attention to which version of the suite you're getting. Most office suites have "standard" and "professional" versions. The standard versions cost less, but typically don't have as many programs or features. Every standard version of an office suite should include a word processor, however.**
3. **Chances are you already have either an office suite or word processing program. If you like the version you're currently using, chances are you'll like a newer version of that software even better. Also, you can buy an upgrade for your current word processor for much less than it costs to buy a new word processor or office suite.**

a few other selections. For some reason, it seems more natural to have this bar at the bottom of the screen. Of course, you really don't have to strain yourself to access the tools in the top toolbar.

Word Pro has a Help section that is designed to help Word users make the transition to Word Pro. This Help section displays a Microsoft Word menu bar. You can click the different selections on the menu bar and choose an action, and the Help section will show you how to accomplish the same action or task using Word Pro.

Word Pro users can choose from a great number of templates when they create a new document. You can choose from calendars, memos, several fax templates, business cards, invoices, and several other templates to get you started on various projects.

Another feature we like about this program is the Properties dialog box. You can summon this box by pressing ALT-ENTER or by right-clicking anywhere in the document and selecting Text Properties in the pop-up menu. You can control the font, text color, attributes, alignment, bullet point and numbering styles, and several other settings.

You can also jump to the Page Layout Properties text box by clicking Page Layout in the drop-down list box at the top of the dialog box. As you would probably expect, you'll use this dialog box to control several page settings, such as the margins, page orientation, headers, footers, and so on.

There is a lot to like about Word Pro 9.6. It's not hard to use, it offers a lot of tools and features and presents them to you in an interesting and practical way. We liked this program so much that we decided to give it our Smart Choice award.

Word 2000

$339 ($89.95 to upgrade from a previous version)
Microsoft
(800) 426-9400
(425) 882-8080
http://www.microsoft.com

We had hoped to get a sneak peek at the next version of Microsoft Word when we began working on this review. However, Microsoft was not able to send us the upcoming version of Word XP (which should be available by the time you read this) in time for us to include it. So we decided to review Word 2000 instead. We figure many users will stick with Word 2000 for a while, rather than take the reins of a new word processor the instant it comes out.

The interface for Microsoft Word 2000 is not especially fancy, at least not at first glance. But one of Word 2000's great strengths is its malleability. You can customize the Word 2000 interface in any number of ways. There are 16 toolbars available, any of which you can open with two mouse clicks. Just right-click an empty part of the toolbar area, then click the specific toolbar you wish to add. Some examples of toolbars include Reviewing, Tables And Borders, and Web Tools. These specialized tools will help you when you want to create, tweak, or otherwise jazz up your documents.

The usual group of standard tools is readily available in Word 2000. You can easily change the font selection and font size by using the drop-down list boxes in the Formatting toolbar. You can also use this toolbar to change the alignment, add bullet or numbered points, and highlight text. Word 2000 includes a spelling and grammar checker. We have mixed feelings about the grammar checker. Sometimes it's helpful, but sometimes its grammar analysis is not especially good.

Like Word Pro, Word 2000 has several templates you can use to set up a variety of documents. However, we think Word 2000 handles this a little better than Word Pro does. Word 2000 has more templates from which to choose. Word 2000 also incorporates handy wizards that guide you through the process of making many documents, such as faxes, memos, professional letters, resumes, Web pages, and even calendars. The wizards are great, especially for newer users.

Microsoft Word 2000 is a rock-solid word processor for the most part, but it does have a significant drawback. You practically have to be Bill Gates to afford the program if you're a new user. Still, this program contains nearly every tool, feature, and function imaginable. Word 2000 should be able to handle any word processing task you have.

StarOffice 5.2

Free download, $34.99 for shrink-wrapped version
Sun Microsystems
(800) 786-7638
(512) 434-1511
http://www.sun.com

The StarOffice program may be the most interesting product we reviewed for this roundup. It is different because the word processor is heavily integrated with the entire StarOffice suite of applications. When you run StarOffice, it basically creates an entirely new desktop in

your display, complete with its own Start button. The easiest way to open the StarOffice word processor is to click the StarOffice Start button and then click Text Document at the top of the Start menu.

Microsoft Word users should feel right at home with the StarOffice word processor interface, because it's almost identical to Word. You'll see two toolbars at the top of the screen. The top-most one has icons for opening documents, saving a document, printing a document, and cutting and pasting text, and they're laid out very much like the top toolbar in Microsoft Word. The lower toolbar, which StarOffice calls the Function Bar, is almost identical to the Formatting toolbar in Microsoft Word. From left to right, the icons in the Function Bar are: Style, Font Name, Font Size, Bold, Italics, Underline, Align Left, Centered, Align Right, Justify, and so on. This is exactly the same order that's used in Microsoft's Formatting toolbar.

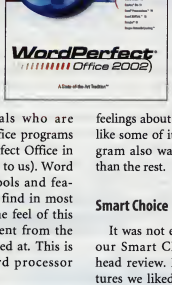
StarOffice is easier to use than Word in some ways. For example, when you right-click highlighted text, the pop-up menu that appears is full of the options you'll use most. You can quickly change the font size or line spacing, add bullet points, or change the alignment with just a click or two. The items in this pop-up menu are more useful (and user-friendly) than those in Word.

Another strength of the StarOffice word processor is the many templates you can use to jump-start your documents. The number of templates available in StarOffice is slightly misleading, because not all of them are word processor templates. For example, you can open a mortgage calculation or car loan spreadsheet from the word processor, but it'll open as a separate document. Still, StarOffice has many useful word processing templates, such as cassette tape and CD inserts, homemade gift certificates, calendars, the usual assortment of faxes, letters, and memos, a resume, and a basic sales contract.

We really like the StarOffice word processor. It's not loaded with specialized tools, but it covers the basics very well. This is an uncomplicated program, yet you can do a lot with it. Oh, by the way, did we mention StarOffice is free to download? With StarOffice, you can indeed get something for nothing.

WordPerfect 10

$159 upgrade; $399 for full version (WordPerfect Office 2002 Standard)
Corel
(800) 772-6735
(613) 728-8200
http://www.corel.com



The final of the four word processor we tested was a beta version of Corel's forthcoming WordPerfect 10. We found that Word-Perfect 10 is not a word processor for the faint of heart. It is clearly designed for office professionals who are already familiar with office programs in general and WordPerfect Office in particular (or so it seems to us). Word Perfect 10 has many tools and features, more than you'll find in most word processors. But the feel of this program is quite different from the other programs we looked at. This is the least intuitive word processor we reviewed.

Having said that, WordPerfect 10 does have a couple of pretty slick features that we liked quite a bit. For example, adding a table to your word document couldn't be easier. Just point the cursor where you want the table to appear, then click and hold down the mouse button on the Table QuickCreate icon in the toolbar. This opens a little grid that drops down from the tool bar. Drag the cursor over the grid to determine how many cells you'd like to put in the table (up to a maximum of 13 x 10 cells). As soon as you highlight the number of cells you want, just release the mouse button and the new grid appears in your document.

Another feature we like is the drop menus used in some of the options. For example, click the QuickFonts icon, and you will see a list of all the fonts you have used recently. Just click one of the font names to switch to that font. You'll find similar menus for using drop caps and for justifying text.

WordPerfect 10 is loaded with templates for all kinds of situations. They are grouped into several categories so you can find the kinds of templates you need rather easily. Categories include Business Forms, Business Reports, Home And Family, Job Search, Education, and Time Management. You should be able to find a template for just about anything using WordPerfect 10.

We have mixed feelings about this program. We really like some of its features, but this program also was more difficult to use than the rest.

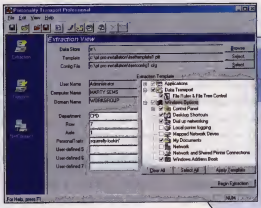
Smart Choice

It was not easy for us to determine our Smart Choice in this head-to-head review. Each program had features we liked, and we can't say that we were really disappointed with any of them. We were a bit frustrated by WordPerfect 10's learning curve at first, but we got over it. After much reflection, we finally settled on Lotus's Word Pro as our Smart Choice. However, if you're not prepared to spend several hundred dollars on an office suite just to get a word processor, don't hesitate to download StarOffice. It's free, so if you don't like it, you're not out anything. ■

by Michael Sweet

Utility

Your Old PC Is Back



Personality Tranxport Professional 2.1

$54.95
Tranxition
(888) 416-9505
(503) 291-6400
http://www.tranxition.com

You probably have no idea how personalized you've made your computer until you reinstall everything on a new hard drive or a new PC. You can literally spend days trying to set your modem configuration, address book, Desktop shortcuts, browser favorites, and other settings back to the way you like them. Tranxition's Personality Tranxport Professional 2.1 (PT Pro) does almost all of this for you.

After you install PT Pro on your old computer or hard drive, you can use it to compress your old PC's system preferences, application settings, and personal data files into a single large "personality" file. Tranxition calls this an extraction. You can put this file on a Zip disk if it fits, on a CD-R (CD-recordable), or on your old hard drive if you know how to install it as a secondary drive later. Next, after you have successfully installed Windows, your applications, and proper hardware drivers on the new hard drive or computer, you can install PT Pro and access the personality file you just made. PT Pro will inject your settings and files into the new PC in minutes.

Depending on your situation, PT Pro's method may make more sense than simply copying your old hard drive "as is" with a drive image program, such as Norton Ghost. For example, unless your new computer has exactly the same hardware and OS (operating system) as your old one, it will have major problems trying to use the old system's settings. Even if you're just swapping your existing computer's hard drive for a larger one, a clean installation leaves behind accumulated clutter and, perhaps, related problems. Of course, an IT (information technology) person could configure new, identical PCs with Ghost, then use PT Pro to transfer each user's settings.

PT Pro is pretty simple to use, although it pays to read its instructions closely. You can let it extract most of your Windows and application settings or just the ones you choose. (*NOTE: PT Pro excludes some custom settings that may conflict with different hardware, such as the swap file.*) It knows just what settings to look for in a long list of programs including most Microsoft applications, Lotus Notes 5.0.3, WordPerfect 9.0, and Dragon Naturally Speaking Standard 4.0 WP. It also supports many earlier versions of these and other applications. You can also choose personal data files and folders to transfer or tell PT Pro to look for file types such as DOC. In addition, you can save your criteria as templates for repetitive use.

We used PT Pro 2.1 to capture settings on a 450MHz Pentium II IBM PC with 128MB of RAM and Windows 98. We told PT Pro to store the resulting personality file on the PC's old hard drive. Next, we set the drive's jumper setting from the master position to slave, and installed a reformatted hard drive with its jumper set to master. After installing Win98SE on the new hard drive, we installed PT Pro and revived the settings we saved on the previous drive. Our settings arrived as advertised, minus a few that didn't make the transition because we hadn't installed the proper modem and video card drivers. After we corrected that and ran PT Pro again, everything was fine.

One beautiful part of PT Pro 2.1 is that it can help new client PCs look for a central personality file on a network server. Its NetConnect feature will put network settings on a floppy diskette, which will quickly set up the client PC's network connection. Install PT Pro, access the server's personality file, and you're done. This is great news for IT people rolling out many identical PCs at once.

PT Pro is primarily aimed at IT folks, but home and small-office users can use it, too. For example, a mobile user could use PT Pro to carry her PC's settings and personal data to her new notebook computer and use it to synchronize the two at regular intervals.

PT Pro costs $54.95 for a single user license, but it's discounted in bulk down to $33 each for 250 users ($8,250). It supports Windows 95, Windows 98, Windows Me, Windows NT 4.0, and Windows 2000 and even allows migrations from one of these OSes to another. PT Pro is easy to use and can save you a lot of work. ■

by Marty Sems

Security

Guard Against Trojans

Everyone knows the danger computer viruses can pose to a computer system. Although usually lumped together with viruses, Trojan horses represent a separate computer threat. Unlike a computer virus or worm, a Trojan horse cannot replicate and infect other files. Instead, the program masquerades as nonmalicious file and relies on trickery to get users to install it. Once installed, a Trojan horse can inflict damage on your system or jeopardize your system's security.

Most antivirus programs detect major Trojans, but if you want the highest level of protection from Trojan horses, you may want to use a separate Trojan scanner. MooSoft makes a very capable scanner known simply as The Cleaner.

MooSoft does not pretend its software is a replacement for a good antivirus program. The software cannot detect or remove viruses, although it can remove some worms (worms infect computers over a network). MooSoft recommends that users run a standard antivirus program in addition to The Cleaner.

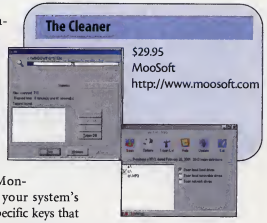
The Cleaner scans for Trojan's in compressed files, including .ZIP, .ARJ, and .CAB files, which adds to the it takes to complete a scan. Scanning compressed files added about three minutes to a scan of 914MB worth of data on our test machine.

Like antivirus software, The Cleaner relies on a database file to provide definitions for known Trojan horses. The database is regularly updated and the latest version contains more than 3,000 definitions.

The software has a nice interface that lets you select what drives to scan, and it also scans network drives for Trojans. Users can browse the software's database of Trojan horses and read short descriptions about each Trojan.

The Cleaner includes TCActive, which monitors your PC for Trojan-like activity and alerts you when it detects such activity. TCMonitor watches your system's registry for specific keys that are used by Trojan horses.

The Cleaner runs on all versions of Windows newer than Windows 95, comes with a 30-day trial, and costs $29.95 to register. ■



by Chad Denton

Word Processing

Get Your Story Straight

We sometimes come across interesting, useful niche products, such as Movie Magic Screenwriter 2000. It's a word processor designed specifically for script writing. The program makes it easier to write that killer screenplay or next episode of "The Simpsons."

It's better to use a screenwriting word processor than a regular word processor because movie and television scripts have lots of formatting rules. When you start a scene, you have to establish where and when the scene is taking place, like so:

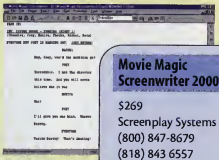
INT. SMART COMPUTING HEADQUARTERS—DAY

And, whenever a character speaks, the character's name should be written in caps 3.7 inches from the left edge of the page. Script writing involves many rules, but because Movie Magic Screenwriter 2000 knows the rules, it'll take care of many of them for you. It provides several shortcuts and tools that make the whole script writing process much easier.

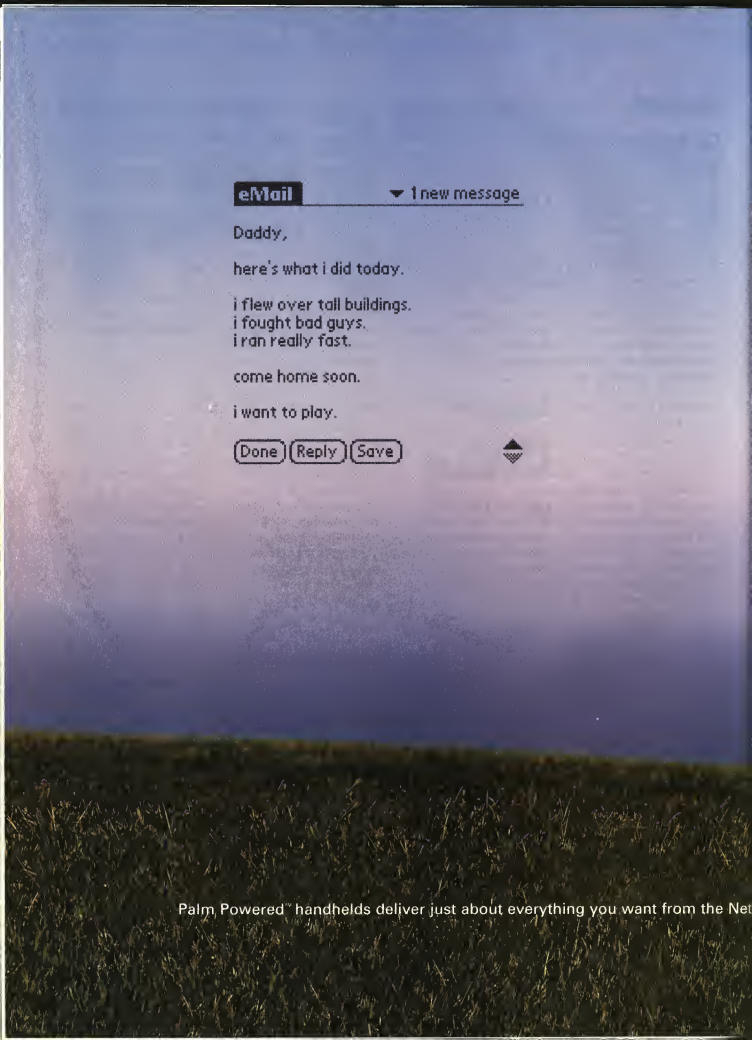
If you're a storyteller at heart or if you want to capitalize on the impending strike by the Writer's Guild of America, you'll want to check out this program. And if you're familiar with script writing, using Movie Magic Screenwriter 2000 will not be difficult at all. The program follows the same logical progression you do when you're writing a script. For example, when you open a new script, press the return key, and the program automatically offers to enter FADE IN: into the script, which is how any good script begins.

The program also handles dialog extremely well. When you want a character to speak, press the TAB key. The cursor will move to the correct spot on the page so you can enter the character's name in the right place. The program remembers the names of your characters, so the next time you enter dialog for that character, you'll only need to type the first letter or two of the character's name; the program will enters the rest.

The program is full of many other tools that writers will find very useful. If you use Movie Magic Screenwriter 2000, you can concentrate on the story instead of worrying about all of those formatting details. ■



by Michael Sweet



Palm Powered™ handhelds deliver just about everything you want from the Net

Like an email from your son, or even a favorite bedtime story. Simply amazing.
palm
Simply Palm
palm.com

Lines Of Communication

Any pop psychologist can tell you how important communication is. With some knowledge of COM (communications) ports, or virtual pathways, you can keep your Windows 95/98 computer's lines of communication to other devices open.

Win9x PCs talk to serial devices, or devices that transmit and receive one bit of data at a time, via COM ports labeled COM1, COM2, and so on. Mice and modems are the most common serial devices, although you may use a serial connection to send files to another computer or to set up a router for your DSL (Digital Subscriber Line) connection.

Although Win9x's COM ports are virtual pathways rather than physical ones, COM ports may directly correspond to 9-pin, 25-pin, or PS/2 (round connectors with six pins) jacks on the back of the computer. For this reason, many users call serial jacks COM ports, as well. Windows also use COM ports to address internal modem cards installed in ISA (Industry Standard Architecture) or PCI (Peripheral Component Interconnect) expansion slots.

Every COM port needs an IRQ (interrupt request line) number, such as 3 or 4, that tells the computer how to prioritize its data traffic relative to other devices. A COM port also requires other settings, such as an input/output range in system memory. Fortunately, Win9x can often assign these settings automatically during installation so you don't have to.

Dissecting COM Ports

It's a good idea to get comfortable with COM ports, as serial devices rarely install without trouble. The easiest way to see which devices are using which COM ports is one you might not think of: your modem's Properties window. To get there, click the Start button, Settings, and Control Panel. Double-click Modems and then select the Diagnostics tab. You'll see your computer's enabled (active) COM ports and the devices using them.

The Device Manager makes it easy to spot trouble with devices connected to your COM ports. Yellow circles with exclamation points denote devices with conflicts, while red Xs show disabled devices.

Highlight your modem's COM port as an example and click More Info. This is also a good way to test your other COM ports.) Your computer will talk to your modem for a few seconds to make sure it's working. A new window will appear with information, such as IRQ and Address (the starting point of its input/output range). Click OK twice to return to the Control Panel when you're done.

Now let's check to see if there are problems with any of your COM ports. In the Control Panel, double-click Systems, then click the Device Manager tab. Relevant devices appear under Modem, Mouse, Ports (COM and LPT), and perhaps elsewhere. Click an entry's plus sign (+) to view devices in its category. Look for a COM port, mouse, or modem entry with a red *X* or a yellow circle with a black exclamation point next to it.

Enabling a port. A red *X* indicates a disabled port or device. If you need to use that COM port for a new device, you must first enable it, or tell Windows to devote some of its resources to any input or output going through the port.

In Win95, enabling a COM port or related device may be as simple as double-clicking its entry and checking the box under Device Usage that reads Original Configuration (Current). Under Device Usage in Win98, make sure the option marked Disable In This Hardware Profile is not checked. Click OK and Yes to reboot your system as needed.

If this doesn't work, you may have enable the port in your system's BIOS (Basic Input/Output System) settings or setup program. Restart your system, and watch closely for a phrase such as Press DEL To Enter Setup. Press the indicated key. You may only have a few seconds, so if you miss it, restart and try again. The setup program should tell you how to navigate it. For example, you may use the arrow keys to shuffle through categories of settings, ENTER to change particular ones, and ESC to exit the program. We had to press F1 to enter our setup program, ENTER and the Down arrow key to enable COM port 3, and F10 to save our changes and exit.

On older motherboards, you might have to move a small plastic jumper to a new position to enable a COM port. Jumpers have metal inside to connect tiny pins on a circuit board to enable or disable functions.

Refer to your motherboard's documentation. If you don't have documentation, write down the name and model of your motherboard and browse the manufacturer's Web site for detailed information.

Sometimes disabling a COM port is a good idea. If you get rid of a device, such as your modem when you upgrade to a broadband connection, you might disable its COM port to free up system resources.

In Conflict

A yellow circle with an exclamation point next to a COM port or serial peripheral in Device Manager may indicate a resource conflict. Win9x tries to automatically assign serial devices to COM ports, IRQs, and input/output ranges that other devices aren't using, but this isn't always possible. For example, some older devices insist on certain settings (although you may be able to change these with software or through a jumper setting).

Double-click the device and click its Resources tab. If the Conflicting Device List shows some other device claiming the same input/output range or IRQ, that's a conflict. Click the automatic settings box if it's not already checked. If the List shows No Conflicts, the problem lies elsewhere. The General tab may tell you more.

Sometimes a redundant entry is behind a conflict. If you've physically removed and replaced the modem card or another device in your PC, Win9x probably redetected it and installed drivers for it (we'll assume Windows found the correct drivers). However, unless you selected the device in Device Manager and clicked Remove before you put it back in your computer, Windows probably listed the replaced device as a separate entry with a different COM port. An example of this is Motorola Modem-SURFR Internal 28.8 Plug & Play #2.

You may need to remove both entries of the device to free up its COM port and IRQ. Reboot and help Win9x detect and install the device, if it needs assistance.

If using the automatic settings and eliminating redundant entries doesn't help, you might need to set the IRQ or input/output range yourself—if Windows will let you. First, see if your system has any free IRQs. In Device Manager, click Computer at the top of the list and click Properties. Windows will list your system's IRQ settings. Notice that certain devices and COM ports often share IRQs. Carefully write down the IRQ list so that if your changes don't pan out, you can return to your previous IRQ settings.

If you see an unused IRQ or if either IRQ 3 or 4 has only one COM port or device, you could try using that IRQ. Click OK. Double-click the conflicting device in Device Manager and select the Resources tab. Click Use Automatic Settings to disable it. Next, double-click Interrupt Request. In the Edit Interrupt Request window that appears, scroll through the Value listings of potential IRQ numbers until you reach the IRQ you want. The Conflict Information area should then tell you no devices are conflicting. Click OK twice and Yes if you see a warning message.

Here's an example of a COM port with settings that conflict with another's. Click Change Setting to try and find an acceptable input/output range and IRQ, but be careful not to make more problems.

If you're dealing with an older device that doesn't support Plug and Play, you may need to dig into more technical settings. Check its documentation to see if the device requires any special settings. For example, you may need to set how many data bits (four to eight) it will send for each byte of information; its parity, or error checking (even, odd, none, or others); or its number of stop bits, which signal the end of a byte (one to two).

You can change these settings from the Device Manager. Double-click the COM port in question and click the Port Settings tab. The Advanced tab has a few more settings regarding the port's transmission buffers (dedicated memory), in case the device needs extra tweaking. Your modem's settings of this type will be in a different place. From the Control Panel, double-click the Modems icon. Click the modem's listing, Properties, and the Connection tab. The Port Settings and Advanced buttons lead to further items to check. Click OK after any changes and reboot your computer to implement them.

Physical concerns. Finally, don't overlook the obvious. Make sure all serial devices are powered on and their cables are hooked up correctly. Also, null-modem cables used for direct connections between computers are easy to confuse with regular serial cables, so be sure you're using the right type of cable. ■

by Marty Sems

You may need to remove
both entries of the device
to free up its COM port and IRQ.

Tips For Using & Hiding The Taskbar

The Windows Me Taskbar is this operating system's most prominent feature, yet many people don't understand its versatility. The Taskbar is usually located at the bottom of your screen. It comprises five components: the Start button, System Tray, Quick Launch bar, user-definable toolbars, and space for program icons, which appear when you launch an application.

After you launch a program, it may be more convenient to relocate the Taskbar to the top or side of the screen. To move the Taskbar, click an empty area on the Taskbar and drag it to the left, right, or top of the screen. People who run many programs simultaneously may especially like the Taskbar to the side; the vertical Taskbar displays scores of program icons more neatly than a horizontal one.

To adjust the Taskbar's size, move the mouse pointer over the edge of the Taskbar until it turns into a two-headed arrow. Click and drag in either direction; you can make the Taskbar fill up half the screen or reduce it to a barely visible sliver. If you prefer a vertical Taskbar, you can reduce it to an area that displays only small program icons, which saves even more on-screen space.

The toolbars on the Taskbar can also be resized. Try resizing the Quick Launch bar, which houses the small icons near the Start button. Point to the vertical slider on the left side of the Quick Launch bar and the pointer becomes a two-headed arrow. Click and drag the slider either way, and Taskbar icons enlarge and shrink, accordion-style. Drag far enough, and the Quick Launch bar will swap spots with the toolbar next to it, letting you rearrange things the way you like. Also, dragging the toolbar to the Desktop creates a floating toolbar.

The Auto Hide feature is another space-saving feature. To try it, click the Start button, point to Settings, and click Taskbar And Start Menu. In the Taskbar And Start Menu Properties box, on the General tab, click the Auto Hide checkbox, then click OK. Now the Taskbar is invisible until you point to its location. This is handy for broadening your view, but waiting for the Taskbar to pop up to locate the desired icon can be time-consuming.

The Windows Me Taskbar is quite flexible; you can enlarge program icons and integrate Internet tools. You can also alter the size and location of the Taskbar.

The General tab contains two other useful Taskbar options. The first is called Always On Top. This feature, which is selected by default, keeps the Taskbar visible while programs are running. Leave this option selected if you multitask between two or more programs.

Another option is Show Clock, which controls whether the clock is displayed in the System Tray. Double-click the clock when you see it to access the Date/Time Properties dialog box, where you can set the date, time, and time zone.

The Advanced tab also has two Taskbar options. Under the Start Menu And Taskbar heading, scroll to Taskbar (at the bottom) to view these options: Display Shortcut Menu On Right-Click and Enable Moving And Resizing. The first option enables a useful list of shortcuts. The second fixes the Taskbar's location and size.

Now try the shortcut menu. Right-click a blank spot on the Taskbar. Point to Toolbars, and you'll see five options. The most useful is New Toolbar, with which you can create a new toolbar from any folder or program.

You'll also see that Quick Launch is selected by default. To remove it, click Quick Launch. Repeat this step to restore the toolbar.

The same process is similar for the other options. Links displays your choice of Web site links on the Taskbar. Address inserts a browser bar that lets you display any Web site you want. And Desktop displays Desktop icons right on the Taskbar.

Right-click a blank spot on a specific toolbar, and another menu appears. There are features here that let you change the size of icons and show or hide program names. Click Open to see a window view of the toolbar. In the window you can remove and add programs to the toolbar and complete other standard Windows tasks.

Finally, opposite the Start button on the Taskbar is the System Tray. This space has icons for myriad programs and also contains system status information, such as an indicator letting you know you're online. Right-clicking these icons will display more information about them.

WinMe's Taskbar takes a little time to learn, but its useful features are well worth the effort. ■

by Nathan Chandler

Immortal E-mail

Outlook's Archive Feature Lets Your Messages Weather The Sands Of Time

MICROSOFT OUTLOOK USERS often rely heavily on the full-featured e-mail and PIM (personal information manager) for storing all kinds of important data. It might seem magical the way Outlook remembers who you're supposed to call and what you're supposed to do, but what you don't know about where all that information goes can hurt you.

Outlook stores all your e-mail messages, tasks, calendar entries, notes, and everything else accessible through Outlook in one big Personal Folders file with a .PST extension (users in networks with Microsoft Exchange Server mailboxes won't find a PST file; their mail is stored on the server). If something happens to your PST file, it can mean the end for all of your vital data. With that in mind, it's important to get to know your Personal Folders file, as well as how to back it up, keep it healthy, and retrieve other PST files if yours goes awry.

Introductions

Get to know your PST file by clicking Outlook's View menu, then selecting the Folder List option. Right-click on the entry for the root folder, which should be at the top of the list, and click Properties at the bottom of the menu that appears.

At the top of the Personal Folders Properties dialog box, you can enter any display name for the folder that you like. If you click the Advanced button, you'll see this information again in the Name: field. In the Path: field, Outlook shows where it keeps your PST folder along with its actual file name. While we're here, note the Compact Now button. Clicking this causes Outlook to compress your PST file to take up as little space on your hard drive as possible. It's not a bad idea to compact it once in a while, as all of the activity in your PST file can lead to wasted space.

If you don't like the location of your PST file, you can rename or move it with little trouble; in fact, you may want to. If you use backup software to copy your data for safekeeping, it might not be aware such an important file resides in such an odd spot. To begin, close Outlook. Navigate to the current PST file location and use the Cut and Paste commands to move the file to the folder where you want it. Now reopen Outlook. You'll see an error message because Outlook isn't sure where to find your personal folder. Click OK to call up an Open dialog box. Now browse to the new location, select the PST file, and click Open.

Outlook should now work as normal, although you might see an extra set of folders in the Folder List. One of them holds all your data, and the other is an empty reminder of your old PST file location. Right-click the old, empty folder, choose the Close option near the bottom of the menu, and the empty folder goes away.

Safekeeping

After you have your PST file where you want it, the next step is to put it somewhere else—or at least a copy of it. Leaving all your Outlook eggs in one basket is no way to live. Outlook offers at least three ways to save messages and other personal data for use as backups or in other programs.

The simplest way to safeguard your Outlook data is to make a plain old backup of the PST file. Anyone can

Illustration Ben Avignone

use a standard backup program to save copies of their Outlook data to any backup media. Just include the PST file in your backup set as you'd include word processor files, spreadsheets, or any other data. The only problem is that Outlook files can grow fairly large; you either need a big space in which to put it or the ability to span several disks.

Otherwise, you can download a free utility that adds a backup function to Outlook itself. Point your Web browser to and download Microsoft's custom Outlook backup tool (the file is less than 200KB and downloads quickly). After you've installed the software, a new Backup command appears in the File menu. Selecting Backup calls forth a relatively simple little dialog box. The Options button is the heart of the operation. The Reminder option in the Backup Options dialog box tells Outlook how often to remind you to back up your PST file. There's also a spot to choose which PST files you want the program to back up and which ones it can leave behind. Many people have only the one PST file, so there's not much to look at here. Finally, click the Browse button to choose where your backup should live and what you want to name it. Click OK to return.

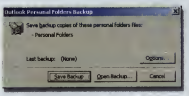
Now that we're back in the main Backup dialog box, it's time to do what we came here to do. Save Backup tells Outlook to copy your PST file to your preferred backup location for safekeeping. Clicking Open Backup, on the other hand, brings up an Open dialog box already focused on the folder holding your backup file.

Being Choosy

Although the Backup utility works well for making certain all's safe in case a hard drive catastrophe comes along, it may not be necessary to always copy everything. Sometimes you just want copies of certain types of information, perhaps only tasks due after March 1, for example. If that's your plan, it's time to get into the exporting business.

Outlook's Import And Export command is also located in the File menu near Backup and Archive. The Import And Export Wizard includes several courses of action. Click Export To A File near the top of the list and then hit the Next button. In the Create A File Of Type: list, choose Personal Folder File (.PST). When you click Next, a list of folders in your open PST files appears. Click the folder you want to export, and click the Include Subfolders box below the list if you want to include its entire contents.

The fun really starts with the Filter button. Using the options in Filter, it's possible to fine-tune your export file to include only the data that interests you. You can select data based on date, key words, sender or recipient names, categories, size, or just about any other feature of which



Download Microsoft's Outlook Backup utility from Microsoft.com free and enjoy a little peace of mind.

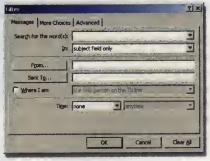
Outlook keeps track. When you've finished, the resulting PST file contains copies of only those folders and data you've specified.

Spring Cleaning

Archiving is different from both backing up and exporting. Backups and exports make copies of data that either include everything in an entire PST folder, as with a backup, or selected information, as with an export. Archiving, on the other hand, moves data out of the main PST file into a separate PST archive file. Another difference is that you can export to many types of files; like Outlook's Backup function, Archive creates only another PST file.

Archiving is a good way to periodically reduce the size of your main PST file without permanently deleting data. Outlook can handle a pretty big PST file, but months and months of information can begin to slow things down. How often you should archive depends on how many messages, tasks, appointments, and other bits of information you add to your file each day, but Outlook's default setting archives every two weeks.

You can archive a folder in one of two ways. First, you can always run a manual archive. Click File, then Archive. By clicking one of the radio buttons at the top of the Archive dialog box, you can select a specific folder to clean out or run an archive on all folders according to their automatic settings, which we'll look at shortly. Assuming you pick a particular folder and its subfolders, decide how old archived items should be,



You can tailor Outlook's Import And Export command to extract just the information you need for use in another program or as a backup copy in case tragedy strikes.

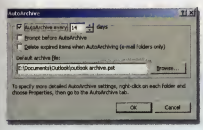
then indicate where you want Outlook to save your archive file. For many users, this will be the media you use to save backup files, perhaps a Zip drive, tape drive, or some drive on a network system that is regularly backed up. Click OK.

Outlook runs the archive operation in the background, which means you can continue to work as normal. As Outlook archives a folder, it re-creates your current PST file's folder structure in the new archive PST file. For example, if you're archiving a subfolder,

Archive automatically creates the parent folder in the archive as well.

AutoArchive automates this entire process by periodically cleaning up folders according to parameters you decide on in advance. To use AutoArchive, head for the global archive settings in the Outlook Options screen. Click the Tools menu, click Options, then click the last tab, labeled Other. Click the AutoArchive button. A small dialog box appears with four basic options. First, skip down to the bottom of the list and decide where you'd like your archived files to go. Click the Browse button and navigate to your preferred location, then type in a file name such as Archive.

Now glance back up at those checkboxes. The first sets Outlook to automatically archive at set intervals. There's nothing wrong with archiving frequently, although on slower computers it can cause a noticeable performance hit. Every week or so is probably about right. Deselecting the second checkbox allows Outlook to initiate archiving without first prompting the user. The last checkbox lets you indicate whether you want to delete e-mail older than a specified number of days during the AutoArchive process (you'll be able to specify the age elsewhere).



The AutoArchive function lets you choose how often Outlook should archive the information in your personal folders and where you want to save it.

To access the properties for a particular folder, click Outlook's View menu, then select Folder List. At the top of the list you'll see the root folder we renamed earlier. This main folder does not have archive properties, but each of its subfolders (such as Inbox, Tasks, Calendar, and whatever other folders you use or have made) has its own properties.

Right-click any other folder and select Properties, then click the AutoArchive tab of the dialog box that appears. This is the heart of archiving, where you decide what happens to the data inside this particular folder. First, choose how old data should be before it heads out the door. Leaving this checkbox blank tells Outlook not to archive the data in this folder. Checking the box sets up a default of three months, which you can change using the Up and Down arrows and the drop-down menu on the right. Next, decide whether you want data from the folder moved to an archive file somewhere or simply deleted. If you're backing it up in a file, you'll need to specify a location and file name.

Repeat this process for each subfolder. Old tasks, for instance, might not be worth saving. Old e-mail messages could be important depending on who sent them and what they're about. If a folder is full of mostly personal e-mail, however, you might rather it be deleted than saved forever.

Opening The Archive

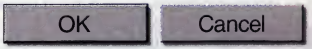
If something bad eventually does happen to your main PST file, opening the backup is a simple process. There are a few paths from which to choose. If you import the archive file using the Import And Export command from the File menu, Outlook will add the data you choose to your current PST file. On the other hand, you can just copy the backup to the spot where you normally keep your main file and rename it to match the old one. Finally, you could open the backup PST using the Open command from Outlook's File menu. This adds the archive folder to your Folder List, and lets you copy the items you want into the appropriate folders of the existing PST file. When finished, close the archive PST by right-clicking it and selecting Close.

You can use these same methods to move PST information from one computer to another. If the two computers are on the same network, it's easy: just move the PST file or create a backup copy on the new machine. Otherwise, the size limitations of your backup media determine how you should proceed. Exporting might be a good choice here; just take what you need, or at least as much as will fit on a particular disk.

While all of these operations can be useful, backing up your PST file is the most important of them all. Keep it warm and safe, and Outlook (and its handy Archive feature) will love you back. ■

by Alan Phelps

There's nothing wrong with archiving frequently, although on slower computers it can cause a noticeable ***performance hit.***



Gator Aid For Web Surfers

Free Utility Stores & Dispenses Your Personal Information

Gator remembers different usernames and passwords for its partner Web sites so you don't have to fill out online registration forms repeatedly.

Not again! If the thought of remembering one more password or reentering the same tedious personal information required on every cybershopping site, contest form, or newsletter has your brain and fingers screaming overload, relief is just a mouse-click away. Gator (http://www.gator.com), a free online companion, reduces both brain drain and finger strain by "remembering" different usernames and passwords for just about any Web site that requires login information and entering it automatically.

Once installed, the tiny application resides in the Windows System Tray waiting for a form to appear in a browser window. When Gator recognizes an HTML (Hypertext Markup Language) form, it automatically surfaces to your Desktop and like a faithful companion, asks to fill in the required information with a single click. When it's finished, Gator recedes to the System Tray until it's needed again.

While Gator's features resemble the autofill abilities of recent browsers, it's like comparing a pen to a PC and calling each a word processor. Gator doesn't take its best guess at filling

TIPS . . . For Using Gator

Instead of dragging and dropping Gator data from field to field, keep the cursor on the Web form you want filled, then double-click on the gray box in front of the information you want transferred over. Gator automatically shoots the data into the field.

Similarly, you can speed up data entry as long as you have keen hand-eye coordination and mouse-clicking skills. Use the Tab key to cycle through fields while clicking the same gray box in front of the information you want transferred. If you time it right, you can shoot data from Gator to the appropriate fields in seconds.

Changing or removing password protection for the Gator software is easy. Right-click the Gator icon, select Settings and under Gator Password, click Add, Change, or Remove.

Changing login passwords once Gator has stored them is clumsy. Delete the actual entry inside Gator, return to the Web site and repeat the login procedures. Open Gator, select Settings, under Login Helper and Form Helper Settings click Change, then under Login Helper Sites, click View Details. When the window appears with your stored Web sites, login information, and passwords, highlight the guilty party, click the Remove button, click Yes when asked if you're sure you want to remove the site, then click OK to close.

If you have Gator on two PCs, say a desktop and laptop, you can move the information already gathered on one PC to other. Open Gator, select the User from the Hello menu (applicable only if there's more than one Gator identity), click Settings, and when the Settings window opens, click the Export button. Gator automatically names the file to be exported by the user's first name, for example, "katie.gat." When you're finished, click Save. To import the file, repeat the same procedure, except click Import. When the familiar Explorer Open window appears, find the file, highlight it, and click Save. Gator doesn't append or update information. One file simply overwrites the other, so it's a good idea to designate the Gator on one computer as the master so you don't accidentally overwrite and lose information.

Open Gator and click My Offers for a list of every special promotion you've been sent and its deadline. To ensure you never get another offer again, in the same area, check the box for Don't Show This Offer Again in the lower left corner of the offer window and click the Close button. To completely remove the OfferCompanion module, open Control Panel, select Add/Remove Software, highlight OfferCompanion, click the Add/Remove button, and click OK.

forms or remembering passwords. It knows. Nor does it need vendor support to work as does Microsoft's Wallet.

Simple and easy-to-use, Gator is merchant independent, browser agnostic, and works seamlessly with just about every Web site. Should you visit a site that isn't Gator-compatible, the program is flexible enough to let you drag and drop personal information into the appropriate fields.

Smart Companion Controversy

Of course, no Web utility is perfect, and Gator has some flaws, such as occasionally crashing and slowing down operations in older PCs. It can also tax memory limits. If you suspect a problem, open and close Gator as needed instead of keeping it active (right-click the Gator icon and click Close on the pop-up menu).

Another concern targets Gator's AI (artificial intelligence) features that watch everything you do through your browser. In fact, every time it's used, the software reports back to the company. If this sounds scary, Scott Eagle, Gator's chief marketing officer, insists it's not. He says that all personal information and sensitive data, such as credit card numbers, last names, addresses, or passwords, are encrypted and stored in a file on the user's computer. The only information on Gator's server is your first name and e-mail address, as well as where and when you've used Gator.

Controls inside Login Helper let you fine-tune how the online companion works.

Controversy surrounds ad-sponsored programs, such as Gator, GoZilla, RealDownload, GetRight, and others, that dump ad-tracking spyware (software that tracks a user's behavior without his knowledge) on your PC to track your Web habits. Some privacy groups feel these tracking programs violate your cyber rights, even if the tracking is done with your knowledge and permission.

Despite the controversy, consumers are downloading the freeware at a furious pace. Since its release in June 1999, the company reports more than 10 million downloads, with more than 1.5 million installs every month.

Gator performs its form-filling and password management duties independent of its data-tracking machinations. If you'd like to test Gator but don't want it reporting your Web habits, one workaround is to download LavaSoft's Ad-Aware (http://www.lavasoft.de), a free utility that detects, reveals, and safely removes most spyware applets.

Password Security

In all fairness, Gator is chock-full of safety and security precautions. For example, its password-protection module is versatile enough to work on PCs you share with co-workers or family members. You can program Gator with different passwords for everyone. Instead of remembering different passwords for different sites, one password protects and unlocks them all. Even if you forget your password, Gator will e-mail it to you after verifying your identity, while keeping mum on any other password and personal information stored in the program.

The company neither hides nor disguises that part of Gator's software is designed to send users "valuable offers" on everything from online services to rental cars. By tracking where you go, Gator's OfferCompanion can better target what offers to send you in the same way a cyber-store customizes its screens with goods it thinks you might buy based on former purchases.

A recent OfferCompanion promotion gave Gator consumers who were shopping for digital cameras 50 free prints at Shutterfly (http://www.shutterfly.com), a Web-based photo service.

Gator tells consumers about this service; it's part of its mission statement. The company believes its ability to track a vast amount of information coupled with its huge database of purchase forms and merchant data will let future iterations of its software intercept spam, help consumers comparison shop, track down the best online deals, and manage personal information online.

"We've gone to great lengths to pack Gator with undeniable value for the consumer," says Eagle. "It's there when you need it, transparent when you don't, and every marketing aspect of the program can be turned on or off."

Getting Gator is easy. Go to http://www.gator.com and click the download button. It takes about three minutes to install the 260KB executable program, depending on your modem speed and Web connection. As it installs, wizards help you enter basic information, such as name, e-mail, and ZIP code. On every screen, Gator tells you exactly what information is private and what information will be sent to the company. Throughout the program, each screen is so easy to understand, it's downright boring.

You can also set up password protection at this time; although, like any Gator feature, you have the flexibility of returning to the program and updating, changing, or deleting information. You can choose to password protect Gator or let it load live at startup. If you're sharing a computer with co-workers or family, it's a good idea to password protect your information. This prevents someone else from entering a site posing as you and making authorized purchases. Remember that Gator passwords are case sensitive, so be careful. If your password is TOP Secret and you type top secret, Gator won't let you in.

The last wizard completes the Fill In forms module with your home address, work address, various phone numbers, and credit cards. The program is smart enough to automatically insert previously entered information in the appropriate fields. For example, in the credit

GATOR Fact Sheet

So how does a company name itself Gator? Well, it helps if everyone involved has a sense of humor, explains Scott Eagle, known internally as the company's chief "instiGator." Otherwise, the company might have stayed with its original 1998 name, eGuard.

The brainchild of Denis Coleman, also known as Gator's chief "investiGator," the company's original concept loosely focused on making it easier for people to conduct business transactions on the Web and protecting privacy, explains Eagle.

Coleman, whose tech track record includes creating one of the first spell checkers in the 1970s, as well co-founding companies, such as Symantec and Visioneer, brought in a cadre of people, including CEO Jeff McFadden, also known as the chief "execuGator" officer, and Eagle.

From remote locations throughout 1998, the team worked on concepts and the all important company name. "We did everything from traditional brainstorming with focus groups to meeting in a pillow factory in San Francisco, sitting on pillows, and tossing out ideas," says Eagle.

The software developed into what is now Gator, back then it was called Helper. "We knew the shipping version of product would be intuitive, proactive, smart, clever, and invisible," explains Eagle. "We also knew the final name wouldn't be as generic as Helper, we just didn't know what the final would be."

As the company's proposed launch drew closer, they collected hundred of names. The best of the bunch were given to the branding team at P3M, Gator's Los Gator, Calif.,-based ad agency. "One of the names submitted was 'Navigator' and even though we knew we couldn't use the name, we liked the concept of our software helping user's 'navigate' through the Web," says Eagle. "P3M's head creative looked at the name, chopped off the 'navi' and the rest is software legend."

Gator.com was founded in October 1998. Its initial product, Gator, was launched in June 1999. Eleven months later, the company launched OfferCompanion. The company is based in Redwood City, Calif. ■

card screen, it automatically enters your username in the Name On Card field. The same auto-insert feature fills out the e-mail and postal mail address fields.

Currently, Gator handles five credit cards: American Express, Discover, Diners Club, JCB, MasterCard, and Visa. The company plans to offer more cards in future versions.

You can enter as much information as you feel comfortable disclosing during the initial installation, and you can always update or revise information. Click the Gator icon, make sure the Hello field is addressing the correct user (Gator defaults to the last user), and click the Update My Info button. Tabs on the right of the screen display categories, such as Home, Work, and Passwords. Click a tab and Gator displays the appropriate screen to edit. When you're finished, click Save to return to My Info-Form Helper.

At this point, you're essentially finished installing Gator and ready to be dazzled by the program's form-filler-outer and password management. To complete installation, Gator requires one final click that transports you to its Web site where you can see a product demo or check out top Gator Giveaways for the month. Gator sends you to its Web site *every time* you add a new user or alias. You can skip what is essentially a plug for its ad-support program by making future additions while offline.

Using Gator

How easy is Gator? Surf to a site that requires you to login and Gator's Login Helper window pops-up. By logging into the Web site, Gator automatically stores the necessarily information including username, password, e-mail address, and more. If you don't want Gator to memorize this information, close the window by clicking the familiar *X* box in the corner of any open Gator window. Keep in mind, Gator will ask for the same information the next time you visit this site. If you never want Gator to remember your login information for a particular site, check the box next to Turn Off Login Helper.

As you log in to different sites, Gator quietly stores the necessary information. The program struts its stuff when you return to a site. Now, a small Login Helper window appears, but this time its loaded with the information needed to enter the site. Generally, it includes your username and a string of asterisks representing your password. Click OK and *ba-bing!* Gator shoots the information to the appropriate fields.

A similar process occurs when a site displays a form requesting personal information. For example, cyber-stores require a shipping address and credit card. The first time you complete an order, Gator's Login Helper appears. If you've already keyed in your address and credit card information during installation, Gator presents it. Then, using a mouse, you drag and drop information from Gator into the appropriate fields.

If you haven't entered your personal information into Gator, don't worry. Simply type the information into the appropriate fields and Gator memorizes and stores it for future references. The next time you place an order at the site, Gator appears armed with the correct information. In most cases, a quick mouse-click shoots the Gator data into the appropriate fields.

That's it! Just about any Web page that contains a form (newsletters, credit card applications, contents, or cyber-stores) can be automated in a similar fashion. If Gator fails to pop up, click the Gator icon in your System Tray, when the My Info Form Helper appears, make sure the Contact Info tab is selected, then drag and drop the information you need where it's needed. ■

by Michael Cahlin

Web Tips

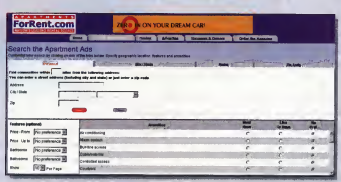
Ideas That Make The Most Of Online Time

Dr., Dr., Give Me The News

Although it won't replace an office visit, you can find out about what ails you at a site called AnswerMed.com (http://answermed.com). In the Find Answers About field, type in the name of the surgery you need to have or the illness from which you're suffering and click the Search button. We typed asthma, and the search netted seven results. After clicking the first, Asthma, AnswerMed.com presented us with eight options for finding out more, including What Is It?, Diagnosis?, Treatment?, Complications?, Predicted Outcomes?, and Specialists? buttons. Clicking Specialists? yielded what types of physicians you might consult for asthma treatment: a pulmonologist or an allergist.

OmniChoice

If you're like most, companies bombard you with calls during the dinner hour, pitching competing plans for ISPs (Internet service providers), cable television, and long-distance telephone services. Rather than continuously switching among every plausible-sounding plan, pay a visit to OmniChoice (http://www.omnichoice.com). After entering our ZIP code, area code, and phone exchange, we selected additional the options we wanted and winnowed our choices down to a few that met our needs. OmniChoice plans to introduce the same search service for paging services and satellite providers, as well as items such as electricity and gas in the near future.



ForRent.com gives you four efficient ways to search for an apartment whether you're moving across the city or across the country.

Moving Right Along

When you're looking for an apartment in a new city, you'll want to check ForRent.com (http://www.forrent.com). Affiliated with *For Rent* magazine, the Web site lets you do so much more than search for an apartment, duplex, or house. However, because finding a place to live is the utmost concern when relocating, we were most impressed with For Rent's search feature. Click Search Apartments and refine your search by Distance, Metro area, City/State, or ZIP Code. The Distance search is particularly helpful if you know where your kids will be going to school, or if you want to find a place within, say, 15 miles of your office.

Put Away Your Pen

You should always register your new hardware or software. Registering makes it easier to get any necessary technical support, and it usually generates product updates so you'll know when patches, fixes, upgrades, new drivers, and such become available. Save a stamp and save your hand from writer's cramp by registering your product online. Look on the new product's registration card for a URL (uniform resource locator) or go to the manufacturer's Web site. For instance, for Logitech's home page (http://www.logitech.com), click Product Registration. Click Mice and then select MouseMan Wheel from the drop-down menu. Fill in the appropriate fields and click Submit.

Play Ball!

Rabid fans who can't get enough of America's favorite pastime should pop up the Major League Baseball home site (http://www.mlb.com) and take in the real-time streaming coverage of the day's games. Click the Audio link and download RealPlayer 8 (or make sure it's already installed). Look for the live game of your choice, then choose the broadcast you'd like to hear. If the Cubs are playing the Expos, and you would rather listen to an English broadcast with Chip Carey on WGN than a French broadcast with Ron Fournier on CKAC, click the English WGN link. You can subscribe to online broadcasts for the whole season for $9.95, less than you'd pay for a dog and a brew at the game.

Forego The Ritz

If you're planning a backpacking trip and want to make it one to remember, you should pay a visit to thebackpacker.com (http://www.thebackpacker.com) before heading out. From the home page, click the link to the Question Section and learn from the hard-won wisdom of other trekkers. You'll see how other backpackers have dealt with problems such as how much weight a child should carry in his backpack, find out what types of gear work best, and read testimonials about what got people into packing in the first place. Brush up on your trail etiquette, look for helpful advice, or scare up some camp recipes that will keep you going strong. ■

Communication Made Real

E-mail Was Just The Beginning—Now, Real-Time Communication Is All The Rage

E-mail is quick, easy, and convenient to use, but it doesn't provide a direct link between people. That important message you sent a moment ago could end up languishing for hours, even days, before someone replies. But if e-mail isn't immediate enough for the hurried online masses, what is?

Welcome to real-time text, audio, and video. Real-time communications technology is growing more and more popular on the Internet; eventually it may even challenge e-mail's reign as the choice for online interaction among friends and business partners.

Real-time communication, or "synchronous interaction," refers to digital communications that are sent through the Internet and delivered via devices such as your PC. With the right computer tools, you can carry on a conversation in text, or even in audio and video, as it occurs in real life. Terms such as "chatting" and "instant messaging" refer to real-time text exchanges, but these activities take on new dimensions when you add in audio and video capabilities.

Chatting

Real-time communication is not a new facet of the Internet, as millions of IRC (Internet Relay Chat) users already know. IRC is one of the pioneering real-time chat systems, established in the late 1980s. The system came of age during the Persian Gulf War, when people from around the world joined in to exchange information about the conflict.

IRC is a text-based chat system in which all users must download and install a client program, an application needed to let you interact in the network.

Once you've logged on to the Internet, you have to connect to an IRC server, a computer that lets you to join one of literally thousands of discussions, or channels, on different topics.

The wide-ranging diversity of channels offered by IRC is one of its greatest attractions, as is its fast pace. Its real-time text chatting occurs just as fast as people can type. In any given channel, there may be dozens of conversations occurring simultaneously, whizzing along at a speed difficult to follow. It can be a head-spinning situation for newcomers, but adjusting to the clamor doesn't take long.

Instant Messaging

Because text chatting is a substantial means of communication, many people are foregoing IRC's "channel" system, where anyone at all can see important messages. Instead, chatters use an increasingly popular form of text communications called instant messaging, or IM. Software clients for IM include MSN Messenger and AOL Instant Messenger. IM has become so fashionable that more instant messages are sent daily than letters in the U.S. Postal Service.

Though AOL and Microsoft both enjoy a huge IM following, ICQ (an abbreviated form of "I Seek You") actually pioneered the concept. ICQ (http://www.icq.com), developed by Mirabilis ICQ (now owned by AOL), is another client program that you can download and install on your PC.

ICQ's most revolutionary feature is its "online indicator" capabilities. Just include friends on your Contact List and ICQ prompts you when they log on to the Internet. It works because to use ICQ, users must register with a server that assigns them a UIN (Universal Internet Number). When someone with a UIN logs on

Illustration: Lori Lyons

to the Internet, ICQ alerts everyone who has listed that person on a Contact List.

Once ICQ has located one of your online buddies, you can chat, play games, and exchange files. ICQ also lets you execute voice chats, another form of real-time communication.

Internet Telephony

Voice chatting over the Internet is slowly but steadily maturing. Ironically, it's being helped along by traditional telephony, because long-distance phone calls can be expensive, sometimes prohibitively so.

The inexpensiveness of PC-to-PC and PC-to-phone calling has drawn millions to try Internet telephony, which used to be solely the pursuit of computer hobbyists. Continually improving bandwidth capabilities have increased the appeal of Internet telephony, because better audio and even video are now available.

In the recent past, people adventurous enough to try using Internet telephony systems were rewarded with a lot of crackling static. They also might hear an eerie echo, and if they were lucky, the tinny voice of the person they were calling.

The reason for this has to do with the nature of how information travels online. When you send data through the Internet, your transmission is broken up into packets of information that are reassembled in the proper order at the receiving end. All this data must be in a digital form, and if there's a lot of data, it must be compressed so that it travels faster through the network.

The complexity of telephony transmissions over the Internet, through the use of VoIP (Voice over Internet Protocol), creates major quality issues. Slight delays don't have much of an effect on e-mail, but when you are dealing with a real-time audio (or video) stream of data, any delay causes problems.

Poor quality is still an issue, yet Internet telephony is getting more popular every day. To try out a computer-based phone call, just log on to one of numerous Web telephony sites. One of the most-used sites is Dialpad (http://www.dialpad.com). The service enables you to connect PC-to-PC and PC-to-phone calls, including international calls.

Long-distance calls within the US are free, and all Dialpad PC-to-PC calls, including international calls, are also free. International PC-to-phone connections are also relatively inexpensive. For example, a call to Germany from the U.S. costs about 15 cents per minute.

You can use Web cameras such as this one from Intel to display your face to others when you videoconference.

Real Life, Real Time

Cheap phone calls are great, but the ultimate form of real-time communication is high-quality audio chat integrated with video with several people at the same time. It's the stuff of futuristic science fiction movies—or at least, it used to be.

A number of possibilities currently exist for one-to-one video chat connections, and depending on some hardware factors, you may enjoy excellent results. The faster connection you have, the better your results, so using ISDN (Integrated Service Digital Network), a DSL (Digital Subscriber Line), or a cable modem is recommended because these provide greater bandwidth for audio and full-motion video.

Of course, you can't engage in such videoconferencing without the gamut of multimedia hardware. This includes a Web camera, microphone, and speakers—the higher the quality, the better. Some sites even recommend using a special headset in place of the stick-like microphone and inexpensive speakers that come with many PCs.

If you want to quickly initiate a video chat, try either CUSeeMe (http://www.cuseeme.com) or NetMeeting (http://www.microsoft.com/windows/netmeeting). CUSeeMe works right on the Web site without any special software, but NetMeeting requires that you download their program from Microsoft.

A video chat works much like a phone call. You simply enter the IP (Internet Protocol) address of a person using the same software standards, and once they've accepted your invitation, the exchange can begin. As with text-based chatting, you can also find perfect strangers with whom to converse.

NetMeeting lets you visit another person's desktop, use text-based chat, exchange files, and even jointly share programs. Register with CUSeeMe and you have immediate access to video chat rooms. Once you've joined a chat room, you can view video of the people with whom you've decided to chat.

CUSeeMe is also marketing CUSeeMe Pro, a program that enables videoconferencing for up to 12 people at once. The application is targeted more at business users working via a LAN (local-area network), because of its bandwidth-greedy features.

Get Ready To Communicate

The rest of the articles in our feature section this month will give you more thorough information on all of these real-time communication technologies. We'll help you decide which of the available Internet text, audio, and video methods is right for you; discuss the hardware and software you'll need to participate; and compare some of the services you have to choose from. ■

by Nathan Chandler

WISH GRANTED.

DID I MISS MY TURN? WAS THAT A PIECE OF METAL I JUST DROVE OVER? I CAN'T BELIEVE SOMEONE STOLE MY CAR. WHEN YOU FIND YOURSELF IN PERIL, JUST PRESS THE ONSTAR BUTTON IN YOUR CAR. STRANDED? WE'LL LOCATE YOU BY SATELLITE AND SEND FOR A TOW TRUCK. CAR STOLEN? WE'LL TRACK IT AND NOTIFY THE POLICE. LOST? WE'LL GUIDE YOU. IT'S LIKE HAVING YOUR OWN PERSONAL SUPERHERO. TO FIND OUT HOW TO GET ONSTAR ON YOUR NEXT VEHICLE, SEE YOUR CHEVROLET; PONTIAC; GMC; OLDSMOBILE; BUICK; CADILLAC* OR SAAB* DEALER, CALL 1-888-ONSTAR-7, OR VISIT WWW.ONSTAR.COM.

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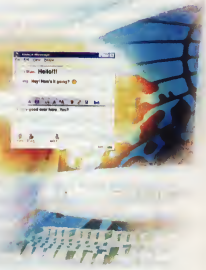
A Chat Room In Every PC

The Instant Messaging Phenomenon



Instant Messaging (commonly referred to as IM) combines the privacy of e-mail and the immediacy of a chat room into a single technology. It lets you converse with anybody anywhere, any time you're both online.

To the surprise of many a skeptic, this technology has become one of the fastest growing 'Net trends since spam (unsolicited bulk e-mail) advertising. According to a recent report from Forrester Research, as of the dawn of 2001, nearly half of the Internet's connectees use IM once a week, and hardcore enthusiasts participate in six or more conversations via IM every day.

If you have yet to fire off your first instant message to a far-flung friend or family member, you may be wondering what the hubbub is all about. We'll take a look at how IM works, a few of the major IM services, and why—or why not—you might want to use them.

How IM Works

At its core, instant messaging is a form of **P2P** (peer-to-peer) technology, which means that the software involved lets you connect your computer (a peer) directly with another user's computer (another peer) through a centralized, dedicated server somewhere on the Internet.

For users, the main component of an IM setup is the software, sometimes called "client" software. Most major commercial IM services like the ones discussed in this article offer the basic required software free of charge.

Your first step into the world of instant messaging is to download a service's client software and install it on your PC (some services now let you send instant messages over the Web without downloading and installing client software, but we'll stick with the basic IM model for now). Using this software, you'll be able to log on to your IM service, which is the central point of interconnection for all registered users of that particular service.

Say you want to IM a friend. When you go online, you fire up your IM software. If your friend is also online and logged into the service, your client software detects their presence and lets yours know they are available to chat. So you "IM" your friend, using the screen name, or "handle," they use to identify themselves in conjunction with the IM service.

As soon as you click the Send button, a window containing your message pops up on your friend's machine. Your friend can type a reply and send it back. Both your message and your friend's reply appear in the IM window on your screen and vice versa, allowing you and your friend to "chat" in real time.

If your friend isn't online when you log on, most IM programs let you send him a chat invitation, or even a short message. The IM service receives your invitation and forwards it to him as soon as he logs on.

You compile a list of people you want to be able to connect with via your IM service. In theory, you also can protect yourself from IMs from strangers by handing out your handle only to those people you want to have IM access to you. Most programs also let you protect yourself from unwanted interruptions while online by hanging a virtual "Do not disturb" or "Be back later" sign on your handle.

You can configure most IM clients to launch and log on to the service automatically whenever you connect to the Internet. They then run in the background, minimized in your Windows Taskbar or System Tray until you send (or receive) an IM. Because these programs tend to hog system memory other applications need, however, you usually can also configure IM clients so they run only when you launch them manually.

Not Just For Lonely Singles Anymore

In theory, there's nothing particularly new about chatting over the Internet. **IRC** (Internet Relay Chat, a system where users around the world can participate in group chats a line or two at a time) has existed for more nearly a decade and a half. Online services such as AOL, Prodigy, and CompuServe have offered chat rooms

Illustration: Lori Davis

since they first hung out their shingles.

But in practice, there are significant differences between today's IM applications and yesterday's chat rooms. A big one is that you don't need to subscribe to an online service such as AOL to start up an instant messaging session using AOL Instant Messenger, the online service's IM application (known to users simply as AIM). All you need is the AIM software, which in this case is free.

What was once considered primarily the province of teenagers is catching on with a wide variety of people from all walks of life and for a wide variety of uses. The most obvious application is communication with friends and family for a fraction of the cost of a long-distance phone call, but the wonders of IM have entered the business sector as well.

Ron Ivers, a department manager at an Indianapolis software development firm, says his company uses Web-based IM to keep office employees in real-time touch with employees who telecommute. "Not all our employees need to be in the office in order to do their jobs," he says. "But having a way to communicate instantly as needed helps to preserve a collaborative office atmosphere. Most of us are so accustomed to working at the PC all day, the messaging almost seems more natural to use than the telephone. It's certainly cheaper."

Award-winning Chicago author Wayne Allen Sallee found AOL Instant Messenger useful for collaborating on a project with another author. "We'd get on and hash things out, to the point of actually cutting and pasting different lines and editing them back and forth, or even writing dialog by assuming the persona of characters and chatting in their 'voices,'" he says. "We wrote 15 chapters that way."

Other businesses are beginning to see the potential of IM as a way to provide customers with real-time online service and technical support. Compaq, FAO Schwarz, and Homestore.com, for example, all have signed on to implement the Instant Customer IM service created by FaceTime Communications (http://www.facetime.com).

Beyond Chat

Today's biggest IM services also offer online chat capabilities, but chat is only the beginning. Some let you make telephone calls with your PC. Some let you send instant messages to mobile phones and pagers, and others let you receive real-time stock quotes or news headlines with links to stories on the Web.

The most recent versions of ICQ, AOL Instant Messenger, and MSN Messenger let you play online games with people on your personal list. Yahoo! Messenger connects to Yahoo! Auctions and Yahoo! Mail, sending you

Instant Messages

Instant Messaging Services: The Fab Five

AIM (AOL Instant Messenger)—America Online, IM's second banana until it became the reigning 500-pound gorilla with its 1998 purchase of ICQ, claims 84 million users of AIM 4.3, its latest version of AOL Instant Messenger.

AIM 4.3 offers basic chat, voice chat, free PC-to-PC or PC-to-phone telephone calls, and features support for common graphics and sound file formats. Users can get instant message alerts for e-mail and stock news (as well as a real-time stock ticker), or play online games with those on their Buddy List. If you have a personal Web page, you can add AIM Remote to your site, and AIM Express lets you send instant messages from the road without downloading the client software.

AOL's reluctance to play nice with IM competitors may have somewhat tarnished its public image, but its 84 million faithful users provide AIM 4.3 with plenty of clout.

Client: AIM 4.3

Cost: Free
Download from:
http://www.aol.com/aim/home.html

ICQ—America Online acquired this service (cleverly named with a phonetic acronym for the phrase "I seek you") from Mirabilis in 1998. It still claims the world's largest IM user base, reportedly reaching in the neighborhood of between 80 and 90 million users and counting.

At press time, ICQ was showing off the beta version of its next IM client, ICQ 2000, for free testing. Perhaps the most complex IM program among our Fab Five, ICQ2000b packs one of the hardest-hitting feature sets. With the possible exception of video instant message support, there aren't many features ICQ lacks in comparison to its competitors. In addition to the basics, Version 2000b adds integration with Microsoft Outlook 2000, letting users send instant messages, e-mails, and file attachments from Outlook via ICQ. ICQ offers free domestic PC-to-PC calls, but charges a fee for domestic PC-to-phone calls.

Client: ICQ 2000b

Cost: Free
Download from:
http://www.icq.com/download

MSN Messenger—Something of an archrival to AOL, Microsoft has led various campaigns to force AIM to offer interoperability. As of press time, Microsoft was preparing to roll out version 4.0 of MSN messenger as part of a coalition of IM programs such as Yahoo! Messenger and Odigo. Known as IMUnified, this coalition is working toward implementation of technology that will allow users of its member services to communicate with each other, in

instant notification when you have new e-mail messages waiting for you or when you've won an online auction.

As IM services strive to differentiate themselves from one another, the scope and functionality of chat client applications likely will continue to broaden in leaps and bounds. Leading edge developers continue working to fit their IM software on non-PC devices. In May 2000, for instance, WebTV Networks announced the availability of MSN Messenger IM service for WebTV users.

Unfortunately, while heated competition drives the development of new features, it may also be digging a pothole or two in the road to IM heaven.

The Mess In Messaging

Perhaps the most notorious drawback to many of today's IM services is their inability to interoperate with one another. Although you don't need to subscribe to America Online to IM an an AOL user, for example, you do need the AIM software. Currently, you can't IM your MSN Messenger buddies with AIM, or your ICQ pals with Yahoo! Messenger, and the list goes on.

This isn't just an annoyance among users; the issue has become a hot issue between the IM companies as well, especially since the recent AOL-Time Warner merger. Historically, AOL has taken pains to block access to its service from other IM services such as MSN Messenger and Odigo. A recent FCC ruling forced AOL to open its service to competitors, but only in the event that AOL adds video communications to its feature set. As AOL has publicly stated that it has no plans to do so, this ruling may simply serve to forestall the advent of video IM.

At press time, the Internet Engineering Task Force (http://www.ietf.org) was preparing to submit IMPP (Instant Messaging and Presence Protocol) as a proposed standard that would allow competing IM programs to communicate with each other. It remains to be seen how and when developers might adopt such a standard.

Meanwhile, the twin scourges of spam and Internet hoaxes that have plagued e-mail users worldwide have found their way into the world of IM as well. Most major IM software provides privacy filters that help guard users from unauthorized IMs, but such filters are hardly foolproof. And with IM, such interruptions travel in real- time.

Despite its problems, however—and despite the fact that IM companies have yet to show profits—the world of IM expands every day, and new users log on by the hour. Some of them may be friends of yours. They'd probably love to chat. ■

by Sean Doolittle

hopes of forcing AIM to join the club or be left in the cold.

Microsoft's current incarnation of MSN Messenger, version 3.5, allows basic chat with up to four users in the same message window. It also offers voice chat, stock tracking, access to Hotmail accounts, file sharing, pager or mobile phone messaging, online games, and free domestic PC-to-PC and PC-to-phone telephone calls.

Client: MSN Messenger 3.5

Cost: Free
Download from: http://messenger.msn.com/download/download.asp

Odigo—Of the five IM service providers capsuled here, the independent spirit award goes to Odigo. A relative youngster in the IM game, Odigo was the only company of our five to offer interoperability between its current version (3.0) and ICQ, AIM, and Yahoo! Messenger. Though Odigo's compatibility with these services has been somewhat shaky (due in no small part to efforts by AOL and others to block said compatibility), the company provides continual software patches at its Web site designed to sidestep interoperability obstacles as competitors throw them up.

Odigo 3.0 allows multi-user chat and voice chat, customizable "skins" (alternate appearances for the software interface), and access to reams of Web content via its Content Channels. Alpha versions of Odigo Express and Odigo Mobile allow Web-based messaging and access to the service through WAP-enabled phones and other mobile devices, respectively. Downloadable plug-ins give users access to e-mail, video IMs, and animated emoticons (icons like smiley faces and frowny faces commonly used by IM and e-mail users to express the desired tone of their messages).

Client: Odigo 3.0

Cost: Free
Download from: http://www.odigo.com/down load/index.html

Yahoo! Messenger—The current implementation of Yahoo! Messenger, version 3.5, comes in flavors for all major operating systems, plus mobile phones and handheld Internet devices. Yahoo! Messenger provides basic chat functionality, IM alerts for stocks and Yahoo! Mail, and lets MyYahoo! users tap information from their customized MyYahoo! pages. All users get free domestic PC-to-PC and PC-to-phone telephone calls.

Its Online Presence feature lets you add an icon to your personal Web page that indicates to visitors when you are online and logged on to the Yahoo! Messenger service. And for the young'uns, there's Yahooligans!, a kids-only (and Windows-only) version of Yahoo! Messenger.

Client: Yahoo! Messenger 3.5

Cost: Free
Download from: http://messenger.yahoo.com/messenger/download/index.html

Cut Through The Chatter

The Truth About Internet Chat

Chatting online has grown from its roots of blindly typing at a terminal into a vast forest of text, audio, and video options. Using one of the many programs available for little or no cost, it is now possible to see and hear the person you are chatting with, regardless of their location. Video chats, formerly affordable only to well-heeled businesses, are now available to the masses, and the technology involved is getting more powerful and easier to use each month.

Unfortunately, chatting can be a bit daunting for the uninitiated. The confusion of having a virtual conversation with dozens of people at once is overwhelming at first, and accidentally stumbling into the wrong chat room can be enough to make decent people abandon the technology permanently. Once mastered, however, chatting is a powerful way to communicate. Businesses can use it to conduct meetings with employees at different locations. Entire groups of friends and relatives can get together for conversations. Users who know their way around the tens of thousands of available chat rooms can get answers to nearly any question or advice on practically any problem. Chatting also has the advantage of being more intimate and immediate than using instant messaging, which is essentially high-priority e-mail.

This article discusses some of the main text chat services that are available, but because there are so many, our real focus is on voice and video chat services and programs. People who have purchased computers in the last year or two should have systems fast enough to run such services properly. And with the current explosion of broadband Internet connections like DSL (Digital Subscriber Lines) and cable modems, more and more computer users have the fast connection speeds that real-time audio and video communications demand.

Initial Steps

The easiest way to learn about chat services is to jump right in and try them. To get involved in chats and Web events, you'll have to download one or more chat programs, called clients, and create user accounts for them.

Before you sign up for any chat service, however, there are some things you should be aware of. The first is that the anonymity of people in chat rooms leaves you in the dark as to what sort of people you're dealing with, so protecting your own anonymity is always the best policy. Most chat account sign-up forms have boxes asking for your real name (first and last), and a separate box labeled "nickname," "user ID," "handle," or something similar. Don't put your real name in the nickname box. It is the name that other members of the chat room will see when you join the chat, and there's a chance someone will try to exploit it.

The second thing you should remember is that many chat rooms don't monitor or filter their visitors and allow all manner of nasty language and lascivious comments to pass unhindered. Some chat rooms, on the other hand, have at least one person in a position of authority in the chat room at all times. These moderators can edit messages for content before visitors post them or boot out visitors who violate the service's policies. You also should be aware that moderators of privately owned chat rooms can boot you from their chats simply because they don't want you there. This happens a lot, so don't be too offended. Frequently people create rooms so they and their friends can chat in peace, and strangers are unwelcome.

Other chat services use special software called filters to censor offensive language. Filtered services may offer client-based filters as part of your chat software, letting you control the level of filtering you want to use, or sever-based filters for more centralized control. You'll usually find server-based filters in places like chat rooms for kids that need to maintain certain decency standards.

Illustration: Corel Corp.

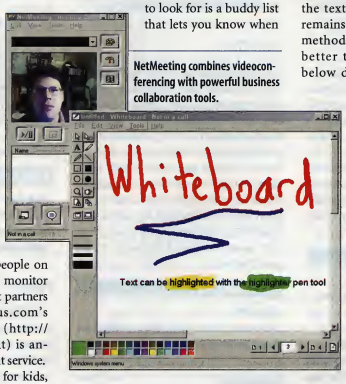
Speaking of decency, most of the public chat sites we looked at contain rooms, situations, and language that would make a demon blush. Users can give chat rooms they create any name they like, so prepare for the worst. If you have kids who want to participate in online chats, you may want to restrict them to one of the many available fully monitored kid-friendly online chat services.

Yahooligans!, a kids site run by Yahoo! (http://www.yahooligans.com), hosts monitored chat events where kids can participate in Q&A sessions with sports heroes and other celebrities. Yahoo! also offers a "lite" version of its Messenger software designed for kids that has chat features (including voice chat), but only lets kids communicate with people on their Friends list. Parents can monitor this list and limit a child's chat partners to approved parties. Bonus.com's Headbone Zone hbzChat (http://www.headbone.com/hbzchat) is another fully monitored kids' chat service.

When looking at chat sites for kids, pay close attention to the sign-up procedure and privacy policies to ensure the site doesn't require kids to divulge personal information. Headbone Zone, for instance, doesn't ask kids for first or last names, addresses, phone numbers, ZIP codes, or gender. Instead, it asks kids to supply a parent's e-mail address so it can inform them the child has signed up. It also requires parents to fill out a permission form and mail or fax it to Headbone before their kids can chat. Unfortunately, no service can keep unscrupulous adults from signing up, so be sure to tell your children they need to be on their guard no matter what chat service they use. There's also no way to filter audio and video chats, and although moderators can boot offensive people out of a chat, they can't prevent your kids from hearing what they say beforehand. None of the kids' services we looked at had video chat, but a few offered voice chat.

Know Your Tools

Chat programs have many features users should consider when weighing their options. One thing to look for is a buddy list that lets you know when friends and colleagues are online. The best even have options like the ability to notify others of your current availability. For example, you can have Yahoo! Messenger tell your chat partners you're away from the computer for a few minutes or otherwise occupied, so they don't think you're ignoring them.



NetMeeting combines videoconferencing with powerful business collaboration tools.

Chatting can be an awkward way to communicate, because someone may be typing a new question while you are still typing a response to a previous question. The best chat programs have typing indicators that appear to let you know that the other person is typing but hasn't sent their message yet.

Services like Excite Chat combine the typing indicator with other advanced features like avatars and dialog balloons. Avatars are graphical representations of your chat room persona, and can range from simple icons to virtual 3-D people. You can drag a thumbnail photo of your avatar around the screen to signify getting closer to or further away from someone else in the room. When someone types a public message, a cartoon-like dialog balloon containing the text fades in next to his avatar, remains briefly, then fades out. This method approximates conversation better than the scrolling chat log below does, but it's always nice to have the log in case you need to review a previous message.

Internet Relay Chat

We chose the chat sites we've mentioned so far because they are ideal for novices. When you're ready to graduate to the big leagues, you'll want to hit the IRC (Internet Relay Chat) servers. IRC can be tough to use, but it offers hundreds of thousands of people participating in tens of thousands of discussions. You can download the requisite client software and learn everything there is to know about IRC at the mIRC Web site (http://www.mirc.com).

Audio & Video Chat Software

We don't have the space to provide full reviews of all the audio and video chat software currently on the market, but we did take a look at several of the more popular packages. To keep up on the latest developments, check out the Video Conferencing Info page at Soon's Casa, located at http://myhome.hananet.net/~soonjp/vidconf.html.

CUseeMe

CUseeMe has become synonymous with video chat for many good reasons. It's one of the oldest video chat prod-

ucts, so its creators have had a long time to work out bugs and optimize the audio and video feeds to quality levels few other products can match. It has all the standard chat features, like buddy lists, text and audio chat capabilities, and plenty of hardware configuration options. In addition, users get collaboration tools for sharing applications and files easily, along with complete compatibility with other popular products like Microsoft's NetMeeting.

Best of all, CUseeMe Pro can handle up to twelve simultaneous video feeds. That alone makes it worth the price of admission, and when you consider its other features, it's easy to see what a boon it is for business users.

Besides its packaged software, CUseeMe Networks also maintains its CUseeMe World site (http://www.cuseemeworld.com), which provides free Web-based videoconferencing.

Client: CUseeMe Pro

Cost: $40
Download from: http://www.cuseeme.com

Eyeball Chat

If you're looking for a video chat program that is extremely easy to use, give Eyeball Chat a try. There's a lot of power lurking behind its attractive interface, and Eyeball Networks has taken great pains to optimize its video quality. Users establish Personal Quality Profiles that let them tailor the software to match their personal audio and video preferences. Some of the options are disabled in the LE version, but a full version with an as-yet-unannounced price will give users total control and let them chat with up to six other people (LE limits users to one-to-one chats).

Client: Eyeball Chat LE

Cost: Free
Download from: http://www.eyeball.com

Excite Chat

Excite has added voice chat features to its popular chat suite, and overall it's a pleasure to use. Avatars that you can move around a virtual room and dialog balloons really enhance the program's text chat features, and the audio worked reasonably well even over a standard modem connection. There are always plenty of chat rooms open and lots of people to talk to, and it's difficult to imagine a chat client that makes it easier for novices to get their feet wet.

Client: Excite Chat

Cost: Free
Download from: http://www.excite.com/communities/chat

NetMeeting

Microsoft designed NetMeeting primarily for business users, and it offers far more features than competing products. We looked at NetMeeting 3.01, which includes enhancements from Service Pack 1 and Service Pack 2, as well advanced collaboration tools like a virtual whiteboard. Multiple users can use the software to edit documents as a team while simultaneously making related comments.

NetMeeting's biggest current limitation is that it can't handle multiple video feeds, restricting users to one-on-one video chat. Fortunately, you can use it in conjunction with other software packages that have multipoint videoconferencing abilities, such as CUseeMe Pro.

If you decide to try NetMeeting, be sure to visit the NetMeeting Zone (http://www.netmeet.net), a third-party Web site maintained by DevX.com. The Meeting By Wire site at http://www.meetingbywire.com is another helpful resource.

Client: NetMeeting 3.01

Cost: Free
Download from: http://www.microsoft.com/windows/netmeeting

PalTalk

PalTalk is a powerful audio and video chat program that has the virtue of being free as long as you agree to accept e-mail offers from the company's affiliates. During account setup, be sure to deselect the boxes that make your name and e-mail address visible to other PalTalk users.

Once installed, PalTalk lets you establish a buddy list and conduct audio, video, and text chats with any PalTalk user. You can ignore chat requests from anyone not on your buddy list, block specific users, and

Chat

Chat Room Etiquette

There are many unwritten rules chat users must follow to avoid upsetting other people in chat rooms, but most involve little more than common sense. For example, you always should try to learn the house rules of any room you enter and try to act accordingly. If you aren't sure what to do, hang around for ten minutes or so without typing anything to see how other participants act. If the room has a theme and you notice participants acting out roles (there are many medieval and fantasy-themed rooms like this), don't hang around if you want to converse without playing along.

The first thing you'll probably notice when you enter a chat session is that salty chat room denizens frequently use a considerable amount of shorthand as they communicate, using abbreviations like lol (laughing out loud), imo (in my opinion), and brb (be right back). While some kindly souls won't mind if you ask what these abbreviation mean, it's best if you keep a list handy when

do things like adjust the sound quality to improve transmission and reception quality.

Client: PalTalk

Cost: Free
Download from: http://www.paltalk.com

Yahoo! Messenger

The free Yahoo! Messenger service is available to anyone with an equally free Yahoo! user account, and the latest version boasts a plethora of features and a slick package. It comes with standard text-based chat and a new audio chat component that worked well in our tests.

If you don't already have a Yahoo! ID, the program will ask you to create one, otherwise you can enter your ID and Password. The program's voice chat feature works in conjunction with its text window, so people who don't have fast enough connections to participate in the voice transmissions can still see what people type and respond in kind.

The audio quality is decent (think AM talk radio), and it's possible to have a conversation using a standard dial-up modem. Transmissions broke up occasionally for us, but overall the system worked well, and broadband users won't have any trouble getting good "reception." Other highlights include custom filtering levels and an Emote window that lets you easily insert a variety of emoticons (typed characters that resemble smiley faces or other expressions you can use to express emotion). Yahoo! adds new features all the time, and it's impossible to argue with the price.

Client: Yahoo! Messenger

Cost: Free
Download from: http://messenger.yahoo.com

Audio & Video Chat Configuration

Regardless of the audio or video chat software you install, you'll have to set up a microphone and either a headset or speakers. All the packages we looked at had automated wizards for configuring and testing your mic, but it may require some tweaking in Windows to work properly. If it isn't reading your voice like it should or is causing distortion, double-click the speaker icon in Windows' System Tray. Click Options, then Properties in the volume control box, then click the Recording radio button and make sure the Microphone box is checked in the Show The Following Volume Controls: box before clicking OK.

The Recording Control dialog box will open. Move the Volume slider under Microphone up if it isn't picking up well or down if it's distorting. In order to get a usable volume level, you may have to click the Advanced button (if you don't see one, click Options, then Advanced Controls) and check the Mic Boost (or 1 +20dB Gain) box. This amplifies everything by 20 decibels, so be sure to tweak the volume level in the Recording Control dialog box if you enable or disable it.

Some chat programs check for background noise during installation. This is especially helpful if you use a hands-free, voice-activated microphone that transmits automatically when noise around it reaches a preset threshold. For best results, use audio chat in as quiet an environment as possible. You might also consider buying a directional mic that doesn't pick up peripheral sound or a headset mic that sits close to your mouth.

Video hardware can be trickier to configure. Refer to the camera's documentation for tweaks you can use to improve overall image quality because methods vary from product to product. There are some constants that impact overall performance, like video resolution and color depth. If you are sending or receiving jerky video, try reducing the size of the video window so each frame consists of less data. Similarly, if your camera's software includes a color depth setting, try lowering it from 24-bit to 16-bit or even 8-bit. This reduces the number of possible colors per frame from more than 16 million (24-bit) to a little more than 64,000 (16-bit) or 256 (8-bit), lowering quality but smoothing the transmission.

Even if audio and video chat don't work for you because of hardware or Internet bandwidth limitations, don't discount the benefits of text chats. They can still bring friends and family together in a powerful way and strengthen business relationships, and there's always someone out there willing to talk if you have the time. ■

by Tracy Baker

you're starting out to avoid looking too much like a tourist. The Chatter's Jargon Dictionary (http://www.stevegrossman.com/jargon.htm) is one of the best resources we've run across for learning the lingo, with definitions for nearly every abbreviation and "chatism" you're likely to encounter online.

The Jargon Dictionary also contains a list of emoticons such as :-) for a smile, and :-P for someone sticking their tongue out at you (you have to look at them sideways to make sense of them). You should keep a printout handy to refer to while getting your bearings. Some services like Yahoo! and Excite have menus you can use to insert small icons, make noises, or punctuate your statements with other effects, so don't be surprised if you see other people using them frequently.

Perhaps the most vital thing to remember when you visit a public chat is that a chat room's servers record everything you say and that someone can probably trace it back to your computer. If you act like a jerk, expect consequences.

Talk Is Cheap

Internet Telephony Is An Affordable Alternative To Long Distance

Long distance companies are falling all over themselves to get your business. You can hardly touch your TV remote without seeing former football players mulling over sushi and big phone savings or TV and movie stars pitching long distance plans as they fade into Hollywood oblivion.

It's a buyer's market, but you can get even better long distance deals than the big Bells are offering, to the tune of three cents per minute. Still too much? Then how about free long distance calls anywhere in the United States? Such services are available if you know where to look, and if you have a PC, a set of speakers, a microphone, and a connection to the Internet, you can take advantage of them.

We'll show you how to set up and use a few of the most popular Internet long distance services available. We'll also critique them so you know what to expect when you make a call. But first, a few words about how Internet long distance services operate.

Nuts & Bolts

The key to these kinds of services is a technology called Internet telephony. Simply put, telephony is the process of using computer software and hardware (such as speakers, a mic, etc.) to speak with someone else over the Internet in real time, just as if you'd called them on the phone. Using Internet telephony services, you can make a PC-to-PC call or call a regular phone from your PC.

Before you make your first call on the Internet, you'll need some special software. There are plenty of programs from which to choose, and several Internet telephony providers will give you the software you need for free. However, depending upon which program and/or service you use and where in the world you're calling, you may have to pay a small fee for PC-to-phone calls (PC-to-PC calls should always be free, regardless of where you're calling from or calling to).

In most cases, you have to register to obtain the software, which means you'll have to fill out an online form in which you provide your name, e-mail address, and other information. After the registration process, you'll either have to download a software program to your hard drive or you'll download a plug-in into your browser. A plug-in is a small piece of software that enhances an existing program in some way. In this case, the plug-in will let you use your Internet browser to place phone calls over the Web. If you download the software to your hard drive, you'll have to install it, then reconnect to the Internet to place a call online.

One thing you should note about PC-to-PC calls: if you want to place a PC-to-PC call, the person you're calling will have to have the software installed. Services or programs that allow PC-to-PC calls usually have an online directory of some kind that you can use to find the person you want to call. You won't have to dial a number, as you do when placing a PC-to-phone call. You'll simply select the username of the person with whom you want to talk.

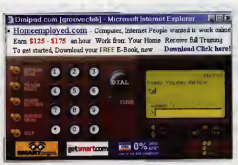
Making a phone call once you've installed the software is pretty easy to do. Actually, it's scarcely different than using an actual phone. All of the programs and services we reviewed have dial pad interfaces just like a phone's, so all you have to do is enter the phone number for your buddy in Schenectady. Most of the interfaces we used had features such as volume controls for speakers and mics, and address books with which you can keep track of phone numbers.

The prime advantage of making long distance phone calls over the Internet is that it's incredibly cheap (if not free). But of course there is a catch. The quality of online calls isn't as good as that of actual

Illustration: Lori Lewis

phone calls. In our testing, the Internet phone calls sounded about as good as a typical cellular phone call. We didn't notice a considerable difference in quality from one service to the next.

There are a number of factors that you'll find will affect the quality of calls you make online. Perhaps the biggest one is the speed at which you connect to the Internet. If you use a dial-up account and a standard 28.8Kbps (kilobits per second) or 56Kbps modem, you're much more likely to experience latency, or the delay that occurs between the time someone speaks into the mic and the person on the other end hears what they've said. Usually it's not more than a second or so, but it still can be a bit disorienting, especially for new users.



Of the services we tested, Dialpad's Web-based calling service was the easiest to set up and use.

How We Tested

We checked out several online telephony services to experience firsthand how good they were. We used a 400MHz Pentium II system with 128MB of RAM running Windows 98 as our test system. We used a cable modem Internet connection in our tests, so we had almost no latency problems. Still, even broadband users may experience static or audio that temporarily cuts out. These drawbacks occurred in our testing, but for the most part they were a minor annoyance and didn't seriously interfere with our phone calls.

We should also note that we used a pair of basic satellite speakers and the desktop microphone that originally came with the test PC. We used each service to call a friend of ours in a neighboring city. We peppered him with questions (consisting mostly of "Can you hear me now? Can you hear me now?"), and noted the quality of the phone call both on our end and on the other end of the line.

Here's one last bit of advice before we plunge into our analysis of a few services. A simple way to improve the quality of online phone calls is to use a headset, which is a pair of headphones with a microphone built into them. The quality of a headset will almost certainly be better than the cheap plastic desktop mic that came with your computer. Also, when you use a desktop mic, the person on the other end of the line will probably be able to hear his voice coming through your speakers; a headset will prevent this from occurring.

Dialpad. Of the services we tested, we found Dialpad (http://www.dialpad.com) to be the easiest to set up and use. You don't need to download a software program. You only need to install a small browser plug-in, which takes almost no time at all. This is a Web-based service, so you'll use your Web browser to access a Web page through which you place calls. You can make both PC-to-PC calls and PC-to-phone calls with Dialpad. One advantage of using a Web-based service is that you can use it with any PC that has an Internet connection, a mic, and a pair of speakers.

Dialpad's strong point is that you can call anywhere in the United States for free, and unlike some services, there's no time limit on your call. However, you will have to endure a couple of ads when you make the call, which can be annoying.

You can set up a Dialpad account in a few simple steps. First, go to Dialpad's home page and click the Join Now hyperlink near the top of the page. The link takes you to an online form, where you'll enter your e-mail address, a user ID, a password, and your name and address. Near the bottom, Dialpad asks for your permission to send you promotions from Dialpad or its sponsors (we definitely clicked NO on that one to avoid being flooded with unwanted marketing e-mail). Click Continue at the bottom of the page to answer more questions about yourself, and at this point the plug-in should begin downloading. A dialog box will open and ask you for permission to install the software. Click Yes, and the browser will take care of the rest.

Once the plug-in is finished installing, you can start dialing. The Dialpad interface is very easy to use, just enter the numbers and click the Dial button. We rang up a friend and chatted for a few minutes to get a feel for Dialpad's service. The quality of the service was OK, although we did experience a few hiccups due to latency.

You'll have to pay to use Go2Call's services, but at least you won't be burdened with lots of ads.

We like using Dialpad because of the unlimited free phone calls (in the United States, anyway) and because of its simplicity, but some users

may find the ads annoying. At one point we even had to *listen* to an ad while we were using Dialpad, which is a bit much in our opinion.

Go2Call. Go2Call (http://www.go2call.com) is a Web-based service like Dialpad, but with a couple of important differences. For starters, Go2Call's service is not free. You have to buy minutes by choosing a calling plan and paying for it with a credit card. The service is only 3 cents per minute for calls in the United States, which is still a better deal than what most long distance services are offering. Its free trial option lets you try before you buy, so you can see if you like the service before you put your money down. Also, Go2Call doesn't shower you with ads. This is the other key difference between Go2Call and Dialpad, and it's one we appreciate.

Go2Call's installation process doesn't take long, but as with the other services we used, you'll have to give them some information about yourself. First, go to the site and click the big Sign Up Now button. The first thing you'll do is indicate which country you're calling from. Next it's time to sign up for a plan. You have four options: a free trial (15 minutes), $6 for 150 minutes for one month, $12 for 360 minutes for one month, or $32 for 1,080 minutes for three months. Choose your plan and move on to the next step.

Now it's time to introduce yourself to Go2Call. You'll have to create a Go2Call ID and give them your e-mail address. When you finish signing up for the account, Go2Call will e-mail you a password, which you'll need to use the service. You'll also have to enter your credit card information so you can pay for the service plan you choose.

Once you've signed up, you can go to the page from which you'll make your call. You can either enter a number in the Make A Call box or click the Dial button to open the call window. Enter a number in the keypad and press dial. Voila! You're talking to Aunt Janice. You will have to install a browser plug-in before you make a phone call, but it'll only take a few seconds.

You'll have to download Net2Phone's client software application before you can begin making online phone calls with your PC.

We dialed up our buddy again and talked for a while. It lived up to the cell phone quality level we expected, putting it right in line with the other services we tried. We could live with this level of quality for free phone calls, although it becomes a little harder to justify when you have to pay for them. Still, those who spend a lot of money on long distance calls can use this service to save a few dollars.

Net2Phone. Net2Phone (http://www.net2phone.com) seems to be the long distance telephony service that's creating the most buzz. Callers in the United States can make free phone calls (up to five minutes) within the country, and you can make free PC-to-PC calls without any restrictions.

You'll need to download and install a program to use the Net2Phone service. The program is just under 1MB in size, so it should only take a few minutes to set up, even if you have a relatively slow Internet connection. As with the other services, you'll have to fill out an online form, providing the usual personal data, and create the user name and PIN (personal identification number) that will give you access to your account. You'll also have to fill out an online survey, which includes questions about your occupation, income level, gender, and so on, and select three subjects you're interested in (such as cars, games, finance, etc.). Finally, you can choose whether to receive periodic e-mail promotions from Net2Phone's business partners.

After much registering and filling out of forms, you'll be ready to make a phone call. We found Net2Phone to be a little more involved than Web-based services such as Dialpad and Go2Call. It has answering machine and voice e-mail features and lets you set several preference options to your taste. We gave this service a whirl and found the quality of the connection to be slightly better than the other services we tried. The friend we called said he could hear us a little more clearly than with the others, and we didn't notice any latency or signal interference.

Honorable Mention

We focused our attention on pure Internet telephony services for this article, but we'd be remiss not to mention that there are several Internet chat client programs that also let you make PC-to-PC and PC-to-phone telephone calls. For more information, see "A Chat Room In Every PC," on page 42.

Each service we tested has its strengths and weaknesses, and we didn't notice a major difference in quality between them. The quality of online calls is not yet on par with that of regular phone calls, but if you're fed up with large long distance bills, you can use these online services to save a few bucks. It'll be interesting to see how the phone companies respond. ❚❚

by Michael Sweet

Failure To Communicate

How To Fix Common Microphone & Web Cam Problems

All audio and video communication through your PC requires a camera for capturing your sights and a microphone for picking up your sounds. Installing these items to your PC is supposed to be a pretty straightforward process (see sidebars for more information), but it doesn't always work out that way.

We've compiled a short list of common setup problems, along with expert advice on what you can do about them.

Is This Thing On? (& Other Microphone Woes)

I plugged my microphone in, but there's no sound. The most obvious points of failure are always the best place to start troubleshooting. First, make certain you've plugged your microphone in properly (is it firmly seated in the correct jack on your sound card?). Inspect the plug and cable to ensure there is no physical damage.

If all is well, open your sound card's mixer, or volume control utility, or open Windows' Volume Control panel (sometimes labeled Master Out). Access the Windows mixer by double-clicking the speaker icon in your System Tray or by clicking the Start button, Programs, Accessories, Entertainment, and Volume Control. Just to cover all bases, click the mixer's Options menu, click Properties, and make sure the name of your sound card appears in the Mixer Device: field. Click OK.

While you're in the Properties dialog box, find the Microphone option in the Show The Following Volume Controls: box, and check the "Select" box next to it. Then head back to the mixer panel and check the Microphone volume slider. Move it up at least halfway, if not higher.

If all systems are go and you're still having trouble, click the Start button, point to Settings, and click Control Panel. Double-click the Multimedia icon, then click the Audio tab and verify that your sound card is the preferred device in the Sound Recording area. If it is, check with your sound card manufacturer's Web site or call its technical support number for known incompatibilities between your sound card and microphone (although such problems are rare).

If you continue to have a problem, see if you can borrow a friend's PC microphone for an evening and try hooking it up to your PC. If this fixes the situation, your microphone is the problem. If not, it's always possible that the problem could reside in your sound card. As a last resort, try isolating a sound card problem by trying another card, or by taking your PC to a local repair shop.

My microphone produces good, clear sound when I speak softly, but I get distortion if I raise my voice to a normal speaking level. Welcome to the world of digital audio, where 0 dB (decibels) is the impenetrable ceiling for all sound. A phenomenon called clipping, which occurs when a digital audio signal exceeds the 0 dB threshold, is almost certainly producing the distortion you're hearing. In the days of analog tape recording, a person could sometimes finesse the strength of an audio signal past 0 dB to "saturate" the tape, producing a peculiar brand of distortion that actually enhanced the sound instead of ruining it. In the digital era, however, the distortion effect is never pleasing.

Open Windows' Volume Control or your sound card's software and adjust the maximum recording volume for the Microphone In line so that your normal speaking volume stays below the 0 dB mark. Some sound card software applications have handy decibel meters that depict your settings visually (green is safe, orange is getting hot, and red is the clip

Illustration: Lon Gattis

zone at 0 dB). If you don't have the benefit of meters, you can generally play it by ear with reasonable success. Simply speak into the microphone in your normal voice, adjusting the volume to the highest point possible without clipping.

My microphone seems to produce an echo effect. Unless your sound card's software allows for audio effects such as reverb and delays, your microphone may actually be picking up both your voice *and* the sound coming from your PC speakers.

For starters, try eliminating the problem by moving the microphone. If that doesn't work, you may have to improvise a bit. We know of at least one user who solved this problem by fitting the business end of the microphone with a short piece of rubber tubing, converting his standard PC mic into a directional mic. Directional mics ignore sound from the periphery, picking up only the sound aimed directly at them.

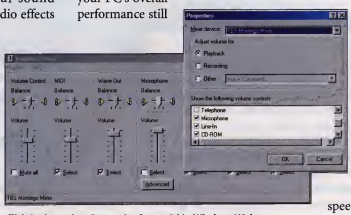
As a last resort, you can always fix the problem by shutting off your speakers and using headphones during conference calls instead.

When I start my recording or voice software, a loud beep comes from the speakers. You probably have a classic case of feedback. Once again, the proximity of your microphone to your speakers is the culprit. Move one or the other until you lay the beep to rest.

Get The Picture

I have a USB [Universal Serial Bus] port, and I'm trying to install a USB Web cam, but I keep getting a USB Port Not Detected error message. You probably need to activate support for USB ports and devices in your PC's BIOS (Basic Input/Output System; special software that control's a PC's operation). This can be a simple procedure, but the necessary steps tend to vary widely from one system to another. Check your PC's users manual for instructions or call your PC's manufacturer for human help.

My Web cam produces sluggish, stuttering video. Even with the fast data transfer rates of today's USB Web cams, your PC's overall performance still greatly impacts your video quality. As a general rule, the bigger and faster your PC, the better video you can expect, but you can maximize video quality from any system with proper maintenance. Running Windows' ScanDisk and Disk Defragmenter utilities periodically is a good start (you'll find both in the System Tools menu by clicking the Start button, pointing to Programs, then Accessories, and System Tools). You may even squeeze a bit more performance from your system by closing all unnecessary programs before using your camera. And, as is so often the case, you might find that rebooting your system works wonders.



Click Options, then Properties from within Windows' Volume Control panel to verify that your sound card is your system's designated mixer device.

In videoconferencing scenarios, however, bear in mind that your video quality will only be as good as your Internet connection; regular phone lines will probably never carry smooth video from one computer to another. Broadband connections such as DSL (Digital Subscriber Lines) and cable modems help matters significantly, but you still shouldn't expect broadcast quality video for less than tens of thousands of dollars.

No matter what I do, this stupid camera still produces fuzzy, cruddy images. This one falls into the system performance category as well. We respectfully submit that it might not be your camera that is stupid, but rather your graphics card.

Of course, it might be the camera too. But assuming you bought a good camera from an established manufacturer like Logitech, 3Com, or Intel (and assuming you've already used its included software to fiddle with brightness, contrast, RGB (red-green-blue) values, frame rate, sharpness, white balance, shutter speed, and other settings), it could be that the video card that came with your computer just isn't up to the task.

Remember that friend who loaned you the test microphone? It's time to see if he has a Web cam as well. If you swap and notice improvement, your own camera is indeed the culprit. If you have the means to try swapping video cards, by all means do so. If not, back to the service center with you.

I installed my camera and it's working properly, but my videoconferencing software won't detect it. Unfortunately, compatibility issues between hardware and software do tend to crop up, especially if you're using a freeware video utility that may not have as wide a support implementation as a popular commercial package. Try visiting the software developer's Web site for downloadable support patches related to your hardware. If none are forthcoming, you may need to go in search of a comparable package that supports your camera. There are handfuls of freeware and shareware programs available, so your odds for success are good. ■

by Sean Doolittle

The Complete Cursor & Pointer

Pointing You In The Right Direction

REGARDLESS OF WHAT WE USE our computers for, most of us still rely on a blinking line, tiny square, or a small moving object no larger than 32 square pixels to help us navigate through various interfaces. You'll probably agree that it's nearly impossible to use a computer or program without having one of these miniature images guiding your way.

Take a look at the cursors and pointers on your screen: those tiny, ubiquitous objects that guide you from your Desktop's GUI (graphical user interface) to applications to the Internet. Just imagine trying to use your computer without one. Without visual indication of your on-screen position or point-and-click accessibility to data, you'd have to access all of your programs' menus, features, and options through keyboard commands. Many users find such setups confusing, time-consuming, and less intuitive to work with than the user-friendly mouse-pointer combination or the flashing cursor in your document.

The Standard Pointer

Most Web sites, users, and companies use pointer and cursor interchangeably. However, these two terms describe different objects. A cursor is the on-screen place marker that shows you where the next text character goes or where an input or output command occurs. In Windows, DOS, and other OSes (operating systems) and applications, the cursor is a blinking vertical or horizontal line or a tiny rectangle. Pointers are more interactive screen objects. You control the image's movement around the entire display screen with a mouse, trackpad, trackball, or keyboard. Using pointers, you can simply point and click icons and other objects to launch applications, choose menu items, activate hyperlinks to other Web pages, and more.

In Win95/98/NT/Me/2000 OSes, pointers take on a variety of default forms and are stored as .CUR or .ANI (for animated pointers) files on your computer. Win9x/Me store these files in your system's C:\WINDOWS\CURSORS directory; WinNT/2000 store them in the C:\WINNT\CURSORS folder. By default, the OS assigns several pointers to appear during one of 15 predetermined program or system actions. For example, when you move your pointer's hot point (the active area of the pointer—often the tip of an arrow) over a Web link, your browser sends a message to your OS to access the appropriate pointer file for that action and display the hand pointer.

The Text Select pointer, or I-beam, appears when you move your pointer over the text area in a word processing program or an input field on a Web page. By positioning this pointer and clicking your mouse, you can determine where your next character will appear in a document, or you can enter a URL (uniform resource locator) in a browser's address field. You can also click and drag the I-beam to highlight words, sentences, and paragraphs.

The Normal Select pointer, or arrow, turns up at some point in nearly every application (and on your Desktop) and lets you keep track of your position on-screen and access applications and menu items. The Link Select, or hand pointer, is used extensively on the Web and lets you know when you've passed your pointer over a hyperlink. The Precision Select pointer, or crosshair, indicates specific input points in graphics programs, and the Move pointer, a crosshair with arrows, lets you know the position of an object or window when you click and drag the item to another part of the screen.

If your computer is opening an application or is busy, your pointer may change to the Working In Background pointer (an arrow-hourglass combination) or the Busy pointer (an hourglass). The main difference between these two pointers is that the Working In Background pointer indicates that you can still access options and

Illustration: Elvis Smith

features in the open window; the Busy pointer means that you cannot.

Other default pointers in Windows include the Handwriting pointer (a pen) and the Alternate Select pointer (a small arrow), both of which are rarely used by applications today. There's also the Help Select pointer that appears when you access help buttons or shortcuts in various programs. The Unavailable pointer (a circle with a slash through it) appears when you're trying to perform an action with the pointer that Windows doesn't allow, such as moving an item to an area that doesn't support the object.

You may see other pointers while using various applications, such as the Paint Bucket pointer in Adobe Photoshop. These special pointers are embedded in the application itself. When you access a tool, resize a frame, or perform some other action in Photoshop, the program sends a request to the OS. The OS then retrieves the image from the appropriate location in the program and displays the pointer on your screen.

Pointer Settings

Default pointers are typically loaded when you install an OS or application. However, if you use Win9x/NT /Me/2000, you can easily customize your default pointer settings and change pointer images. Click the Start button, Settings, and Control Panel and double-click the Mouse icon to open the Mouse Properties dialog box.

Next, click the Pointers tab to view a list of active pointers and the functions to which they are assigned. Click the arrow next to the Scheme field and highlight one of pointer schemes in the Windows default list. A pointer scheme is a set of pointers designed around a single theme, such as Entertainment, which turns your cursor into a tuxedo-clad gentleman complete with top hat and cane and your pointer into a martini glass with an olive. You can preview your choice before applying it in the window below the Scheme field. Click Apply when you're finished to change your pointer scheme.

In addition, Win98/Me/2000 users can access different pointers through the Desktop Themes feature on the Control Panel. If you can't find the feature in your control panel, you may have to install the option from your Windows installation CD-ROM. When you access the Desktop Themes window and make your selection, your mouse pointers will change to reflect the theme's subject, such as Science, Nature, or Mystery. For example, if you select the Science Desktop theme, your Working In Background pointer will appear as a bubbling beaker.

If you want to replace the bubbling beaker with a Windows default pointer, open the Mouse Properties dialog box, click the Pointers tab, highlight the pointer you want to replace, and click the Use Default button. You can also choose another Windows pointer by clicking the Browser button and opening the C:\WINDOWS\CURSORS or C:\WINNT\CURSORS folder. You'll see a list of default pointers. Highlight one and click Open and then the Apply button. The selected pointer should now appear next to the appropriate action.

You can make further adjustments to your pointer by accessing the Motion tab in the Mouse Properties window. There, you can change the speed at which your pointer moves and adjust other pointer movement settings. Be sure to click OK when you're done.

Custom-Made Pointers

If the limited number of Windows default pointers and settings just don't seem like enough, you can always turn to the Internet for numerous alternative pointer files and programs that expand your pointer's capabilities.

Comet Systems' Comet Cursor (http://cometcursor.cometsystems.com), for example, replaces your default Normal Select pointer with one of

Cursor Extra

Along with the pointers listed in your Windows CURSORS folder, other pointers may appear in various applications to indicate specific tools that you can use or actions that you can take in the program itself.

Excel 2000

The main pointer in Excel 2000 appears as a large plus sign. If you position your pointer on the edge of a highlighted cell so that you can see the Windows Normal Select pointer and press the CTRL key, your pointer will change to a thin arrow with a plus sign. This indicates that you can drag the cell's contents and insert the item between other cells or replace the content of another cell.

Internet Explorer 5.0

With JavaScript, programmers can make your pointer light up text or change content as the pointer passes over an object. Some Web pages may also contain code that transforms your pointer into an image that reflects the content on that site, such as a Garfield pointer on a fan site. Your pointer will return to normal once you leave the site.

Microsoft Word 2000

Press CTRL-ALT-= (equal sign) and your pointer appears as a black plus sign. This indicates that you can now add button commands on your toolbar to the corresponding menu in Word (Press ESC to return your pointer to normal). For example, with the plus sign pointer, you could click the Numbering toolbar command to automatically add that option to your Word Format menu. Press CRTL-ALT- - (hyphen) and your pointer changes to a short, thick horizontal line that you can use to remove the option from the given menu.

2,500 images, including designs for holidays, sports, religions, flowers, and animals and characters from South Park, Dilbert, and more. The download itself takes only a few seconds and changes the pointer in your computer's Mouse Properties/Pointers dialog box for you.

Other sites, such as Dierks Page (http://www.anicursor.com), TopDesktop.com (http://www.topdesktop.com), and Cursors.com (http://www.cursors.com), let you download sets of pointers free or for a small fee. Some downloads are .EXE (executable) files that add the new pointers to your Mouse Properties/Pointers list for you. Many other downloads are .ZIP files that you can unzip (with an unzip utility) to your C:\WINDOWS\CURSORS or C:\WINNT\CURSORS folder and use to replace your old Windows pointers using the procedure we outlined in the previous section.

In addition, creative types can use a variety of programs, such as CursorArts' IconForge, Paul Traver's Icon Easel 98, or Impact Software's Microangelo 5, to make their own pointers. These applications range from $19 to $60 and let you create and edit pointers pixel by pixel and designate the pointer's hot point. You can also edit your existing pointers or create animated .ANI files.

You can find new pointers to replace your default pointers in the C:\WINDOWS\CURSORS directory.

You can also download programs to extend your pointers' capabilities. Toggle Software's ToggleMOUSE 4.5 (http://www.toggle.com), for example, lets you locate a lost pointer on your Desktop, have the pointer blink when it hasn't moved for a few seconds, and hide the pointer when you're typing text. In addition, the $20 program comes with a variety of pointers to replace the default Windows pointers.

Pointer Appreciation

All this talk about adjusting pointers, customizing images, and creating and editing your own pointers may seem like much ado about a tiny part of the user interface. Keep in mind that this small object is no less than a liaison between you and the Internet, your applications, and your Desktop, granting you quick, easy access to nearly all the options, features, and data on your screen.

Pointers and mice were an intricate part of the GUI, says Ben Austin, marketing director of Comet Systems. People liked the convenience of being able to quickly position a pointer and cursor around the screen, instead of having to use keyboard arrow keys. Once various windows appeared on-screen, users needed easy ways of moving about their screens.

"The pointer was a natural proxy for the user on the machine," Austin says. It helped bring about the user-friendly, point-and-click data access that millions of computer users around the world have easily understood and learned. For something as deceptively simple as a 32 x 32 pixel image, that's quite an accomplishment. ■

by Lori Robison

Money 2001

If you have a pie, bar, or line charts on-screen, your mouse pointer changes into a magnifying glass when you glide the pointer across account information on the chart. After a moment, a small pop-up window appears next to the pointer with the account name and dollar amount. When passing your pointer over material in reports that list items, your pointer appears as a magnifying glass with a plus sign; just double-click to view and edit an entry's information without having to access your Account Register.

Outlook 2000

Click and drag an item and you'll see your pointer change to an arrow with a small, gray box beneath it. Your pointer will return to normal once you drop the item into another area. If you try to drag the item to an area that the Outlook file does not support, the pointer will change the Windows' Unavailable pointer. To adjust your Folder List frame width, you'll have to move your pointer toward the frame's edge beside the main window until your pointer changes into two small, vertical lines with tiny arrows on either side. Only then can you click and adjust the width of the Folder List frame.

Photoshop

Click one of the tools on Photoshop's toolbar and your pointer will change to a visual representation of that tool. For example, click the Paint Bucket Tool to transform your pointer into a small paint bucket and select the Eyedropper Tool to change your pointer into a small eyedropper. Click the Marquee Tool and you'll see crosshairs. Click the Airbrush, Paintbrush, or Rubber Stamp icon to change your pointer into a circle the size of your selected brush or rubber stamp. ■

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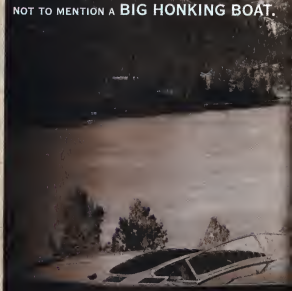

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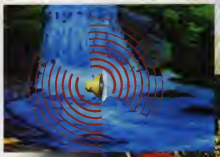
The Illusion Of 3-D Sound

Usually when we think of 3-D applications, we think of games. Specifically, we think of the 3-D graphics; the intense, colorful, fast-moving images that create a more interesting gaming experience. To really make the game come alive, however, you need 3-D sound. Almost all games that incorporate 3-D images also incorporate 3-D sound.

You won't find many other applications that use 3-D sound, says George Thorn, director of audio development for Creative Labs. Some people are experimenting with using 3-D in Web applications, but Thorn says games account for the vast majority of programs that use 3-D sound.



1 Your PC's software plays a greater role than hardware in creating 3-D sound. Software creates a physical model of a 3-D environment that you can interact with, usually in the form of a character you play. You can move around and see things in 3-D space. You can also hear things in 3-D space because the software controls the 3-D sound, as well.

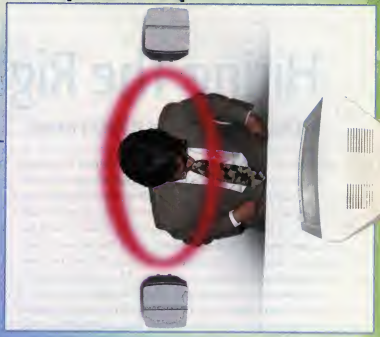
An API (application program interface), such as Microsoft's DirectSound3D, creates a sound "object" and affixes that object somewhere in the 3-D space of the game. It can either associate the sound object with a physical object in a game or it can just leave the sound floating in the background (called an ambient sound). For example, if there's a waterfall in the game, the API will create a sound object of water crashing over the ledge and stick that sound object in the same location as the waterfall. For an ambient sound, the API may create the sound of birds chirping in the distance.

2 The program notes where you are in relation to the sound objects and tries to create the sound so that it appears to be coming from that location. The program does this with HTRF (head-related transfer functions), which are algorithms that model how sounds are created in 3-D space. The algorithms calculate how those sounds need to be delivered through your speakers to create a 3-D effect.

3 When the sound passes through the sound card, it may add other special effects to it to enhance the quality of the sound and make it more realistic. For example, if your character in a game is in a cave, the sound card adds echo to simulate being in a cave. If your character is in a carpeted hallway, the sound card will dampen the sounds in the game.

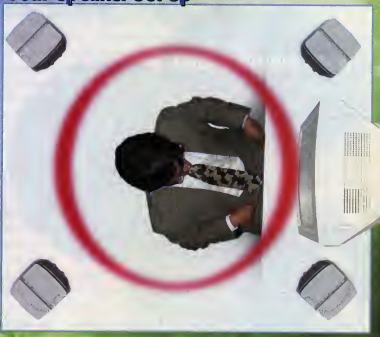
Two-Speaker Set Up

4a When you're using two speakers to create 3-D sound, the speakers try to create a sweet spot of sound, which is like a halo of sound that surrounds your head. As long as your head remains in this halo, the 3-D sound effect should sound OK. If you move your head outside of the sweet spot, the 3-D sound effect will be lost.



Four-Speaker Set Up

4b Another way to create 3-D sound is to use four or more speakers. The sound card channels some sounds to the front speakers and others to the rear speakers. This creates a stronger 3-D effect, because sounds come at you from several directions. Creating a 3-D effect is a matter of playing certain sounds through the proper speakers. For example, if someone is walking behind you in a game, you'll hear the footsteps through the rear speakers but not the front ones.



Hiring The Right VAR

Get Your Business What It Really Needs

WHEN IT COMES TO SPORTS, Curtis Publishing Company knows how to play ball. But when the 30-year old publisher of *Football News* and *Dolphin Digest* (http://www.dolphindigest.com) needed help with its computer network, it had to bring in someone with more game. Like many small to mid-sized companies, the Miami, Fla.,-based sports publisher didn't have an IT (information technology) department. Armando Mato, the company's creative director, had been fielding the computer chores.

For non-tech savvy businesses dependent on technology, Mato's story is a familiar one. A guy in the company evolves into "the computer guy" simply because he knows more about computers than anyone else. While Mato could cover minor league computer problems, the job in question required a big league professional. Mato's solution was to hire a designated hitter: a local computer consultant also known as a VAR (value added reseller).

William Goldstein (http://www.wdgoldstein.com), an LA-based VAR/computer consultant with 12 years of experience, says more people than ever are passing themselves off as PC experts. Finding a VAR isn't easy; hiring the wrong person is frustrating and a waste of time and money, and your system may end up in worse shape then when you started.

So how do you hire the *right* VAR for your business? What do you look for? How do you know if you're getting a deal on a service contract or being dealt a bad hand? We'll show you how to avoid common consultant blunders and make a better decision.

Find A Local VAR

"Before I went looking to hire anybody, the first thing I did was figure out what I needed," says Mato. Even if you don't know the technical terms, write down what you're hoping the system will do or what you think it needs, such as sharing information, e-mail, and linking offices in different cities. With blueprint in hand, regardless of how vague, it's easier for a VAR to begin making specs for the job.

Friends, co-workers, colleagues, and members of trade organizations all have a computer story, and most are happy to share. Don't forget trade publications, such as *VARBusiness* (http://www.varbusiness.com), and local user groups. To find a local user group, call the Association Of Personal Computer Users Groups (http://www.apcug.org) at (626) 334-8522.

Both Mato and Goldstein agree that word-of-mouth referrals are the best way to find a reliable VAR. In fact, referrals are the only way Goldstein gets new business; his phone number is actually unlisted.

Ask potential VARs lots of questions, including: How long have you been in business? Are you tied into any specific manufacturer? Be aware that it's common practice for VARs to receive kickbacks from hardware manufacturers, such as Dell or Gateway. There's nothing improper about it unless the VAR fails to disclose the information.

With VAR referrals, be diligent and call them. To determine skill level, ask for references. If they don't have any, or won't give them, move on. References are no good unless you call them, say Mato and Goldstein. Don't just talk to the person who hired the VAR or who pays the bills; you'll get better feedback from the person responsible for in-house maintenance. Remember, if the VAR provided the company as a reference, he's expecting positive feedback. Even so, ask how he'd rate the VAR?

Illustration: Eren Smith

Would he rehire? Were there any problems? Was the job completed on time?

After narrowing down selections, meet prospective VARs face-to-face. Don't base your decision solely on technical acumen. People skills are important for long-term projects. Many companies get into trouble hiring a VAR too quickly. The hiring process isn't easy and could take weeks or longer. Mato says he met with almost a dozen VARs before making a decision.

With a smaller list of prospective VARs, ask if the VAR is accredited by the publisher of the operating system you are using or planning to use. When was he last certified? The more recent the accreditation, the better.

Return to the referral list and see if your candidate has done a similar job. Let someone else provide on-the-job training; you want someone who knows what he's doing, says Mato.

Responsiveness is important. When you call the VAR, are you talking to a machine or an answering service? Does he leave a pager number or any way to reach him immediately? Check callback response time. Did he return your call immediately or hours and days later? Find out the hours he's available. You may need to reach him during nonbusiness hours and holidays.

"If the job includes sites in 10 different cites or 1,000 machines locally, a one-man show won't work for you," says Goldstein, a one-man company himself. "Conversely, before you hire a company, make sure you talk to the person who'll be assigned to you. There are different levels of service and expertise. With a one-man show you know exactly who you're getting every day. With a larger company that can vary."

Negotiate The Deal

The trickiest part of VAR negotiation is money. Pay careful attention to detail. Make sure everyone is estimating the same job, says Goldstein. Something simple like deciding to use an outside mail server instead of installing one in-house can shave thousands off an estimate (see the "Better Shop Around" sidebar). Get everything in writing so you can compare hardware, pricing, and other services line by line.

With estimates in hand, find out how each VAR arrived at its prices. Some VARs have an all-inclusive, flat fee. Others charge by the hour, by the job, or a combination of all three. Go through each estimate carefully. Ask questions. Make sure the job includes all fees. Check for gray areas that could wind up costing you thousands later.

For large or long-term contracts, try to negotiate fees. Goldstein, for example, tailors jobs. He discounts his hourly rate with a prepaid retainer, and much depends on the job. You'll be able to negotiate a better deal from a VAR handling everything: hardware, consulting, and network management services.

Get A Good Service Contract

Computers crash, networks go down; that's the sad reality of everyday computer life. Here's how to protect yourself when bad things happen to good equipment.

"I can't stress how important it is to get everything in writing," says Mato. This is especially important if more than one contractor is involved. Goldstein, for example, backs his work "for at least a year with a 100% 'bumper-to-bumper' warranty," provided he supplies all equipment and software.

Make sure all hardware and software is under warranty from the manufacturer. Determine who is responsible before a crisis occurs: the manufacturer or the VAR who installed the equipment. Whenever possible, get on-site warranty services.

"Here's where knowing your computer system can save you money by not buying more services than you need," says Mato. Do you need on-call technical support 24 hours a day, seven days a week? Evaluate your network needs, and you can customize a policy that balances price vs. service. ■

by Michael Cahlin

Better Shop Around

To illustrate how widely pricing, services, and equipment can vary, we contacted three VARs and asked for estimates to install a network for 10 employees. Here's what we discovered.

An average business workstation, featuring an 800MHz Pentium III, with 128MB of RAM, a 20GB hard drive, CD-ROM and floppy diskette drives, business audio, a 15-inch monitor, a mouse, a keyboard, a 10/100 network adapter, and a 3-D AGP (Accelerated Graphics Port) card, fluctuated from $1,100 to $3,000 per user.

VARs recommended different operating systems, but we found that Windows NT 4.0 or Windows 2000 Professional cost $799 for 10 licenses. Microsoft Office Pro added another $250 per user.

One VAR recommended a high-end server, another economy. The difference: approximately $2,400 vs. $6,000. Two VARs recommended using an outside e-mail service for about $200 a month. The other recommended Microsoft Exchange Server for $1,600. Total network Server and Setup also ran the gamut from $1,000 to $5,000.

Two network laser printers, including HP Jet Direct or equivalent adapters plus the network hub/switch, fluctuated in price from $700 to $2,500, and two VARs wanted an additional $1,000 to set this up

We told each VAR the same thing, but we could have spent anywhere from $19,000 to $48,000 for one server and 10 workstations. What's more, that doesn't include extra services, such as on-site warranties, long-term network maintenance, or emergency repairs. So we suggest you do your homework. ■

Format It & Forget It

Develop & Save Customized Templates For Your Word Documents

REGARDLESS OF THE OFFICE environment you work in, you may routinely have to compose letters, faxes, reports, articles, and papers for different but repetitive purposes and audiences. To professionally address the requirements of varying audiences, you'll probably have to adjust margins, font styles, sizes, and line spacing for each document. You may need to compose a variety of documents using Microsoft Word's Normal template, then to meet your business requirements, reformat the entire document. This can be frustrating and time-consuming. To increase your efficiency, you may try to use Word's templates; however, you'll still have to rework these templates for each application.

Why not develop custom formats for each document type you normally use and save these as named templates you can easily identify? When you use these custom templates, each document you compose is then properly formatted, saving you loads of time and effort.

How To Modify The Existing Template

Once you've customized the Word templates, you'll want to save the modified templates with names you've created and apply the correct template to your unique job. Let's customize and save the Contemporary Letter template. You can then apply this procedure to any of Word's templates.

Open Word and click File, New, and the Letters & Faxes tab. You'll see a list of letter and fax types; highlight Contemporary Letter. In the Create New section, click the Template button and OK to open the Contemporary Letter template. Do not directly save this template after you modify it; saving it corrupts the original template. We'll show you how to save your modifications under a unique template name.

Return Address. In the upper right text box, highlight Click Here And Type Return Address. Then click Format and Font. Scroll to Garmond and click to highlight it. Garmond looks professional and is easy to read. Highlight Regular in the Font Style box and 12 in the Size box. Click OK. To save your return address style with the new template, highlight the return address and press CTRL-SHIFT-S; you'll see Return Address highlighted in the Style box on the Formatting toolbar. Type a new style name, such as My_RtnAddress, and press ENTER. Type your name and address in the return address area; this will become a permanent part of your custom template.

Company Name. Highlight Company Name Here and then type your company's name. To change the default font style, highlight your text and click Format and Font and select the Font, Font Style, and Size you prefer. If you don't want to include a company name, select Company Name Here and press DELETE.

Graphics. The master template contains five gray graphic objects: vertical dots, a large rectangle, a globe watermark, horizontal dots, and a small rectangle. To remove any graphic, click View, Header And Footer, and click the graphic. A bounding frame appears around the object. Click one of the rectangles forming the frame and press DELETE. Repeat the process for each graphic you wish to remove. Close the Header And Footer box.

Body text and format. Now, let's modify the date and body text. Highlight the date, and the word "Date" appears in the Style box on the Formatting toolbar. To change font parameters for the Date, click the Down arrow next to the Font Style box on the Formatting toolbar, scroll down, and highlight Garmond. Select 12 in the Font Size box. Highlight the date and save the Style by pressing CTRL-SHIFT-S and typing My_Date, or another name, in the Style box. Press ENTER. Proceed in the same fashion to change the font and enter new style names for Inside Address, Salutation, Body Text, Closing, Signature, and Title. Right-click the Closing, which defaults as "Sincerely." From the pop-up menu, click Best Regards, for example. Type your name in the signature box over Click Here And Type Your Name.

Illustration: Bert Dodson

Remember, anything you type in the template will be saved and does not have to be re-entered. If you've removed the Company Name field, you'll need to center the text. Place your cursor in front of the date and press ENTER three times. There's also a Slogan field at the bottom of the page. You can type a slogan and identify a Style to retain the Slogan box, or you may wish to type a phone number and e-mail address in the Slogan box and center the text. As with other fields, you can remove the Slogan box by highlighting and pressing DELETE.

Margins. The default margins are 1.25 inches, which are appropriate for letters. We discuss changing margin settings below.

Save Your Customized Template

When you're finished making changes, you'll want to save your customized template. Click File and Save As and you'll see the box containing the template files. Type a name for your new template; we suggest typing My_ in front of each customized template to make them easier to identify and locate. For instance, type My_Contemporary Letter and click Save. You'll see your new template under the General tab when you click File and New.

Create A New Template

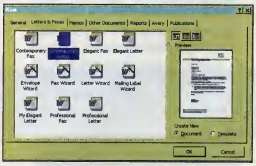
You can also create a new template that contains both proper formatting and unique information, such as your name and address. Let's create a template with one-inch margins and double-spaced lines using MS Reference Sans Serif 12 point font. Such a template is suitable for articles and papers.

To begin, click File and New, highlight Blank Document, click the Template button, and click OK. Remember you must use the Save As command and give the template a different name to avoid contaminating the original.

Margins. To change the margins, click File, Page Setup, and the Margins tab. Use the arrows to set all four margins to 1 inch, which is publication standard. Set the Apply To field in the lower right corner to Whole Document and click OK.

Font. You'll probably want to change the font and apply the changes to the entire document. Click Format and Font, scroll down the Font field to MS Reference Sans Serif, and click it. Click Regular in the Font Style field, click 12 in the Size field, and click OK.

Line spacing and indents. To automatically indent the first line of a paragraph by one-half inch when you press ENTER, click Format, Paragraph, and the Indents & Spacing tab. In the Special field, click the Down arrow to get to First Line. The By field will show 0.5". To double-space lines, click the Down arrow in the Line Spacing field until Double is visible. Click OK to apply all of the format changes.



In the New properties box (click File, New), click the Letters & Faxes tab to access document templates.

Page number and title. Move the cursor to the top of the page and click View, Header And Footer. Pass your cursor slowly over the icons on the Header And Footer toolbar to see their names. Click the Page Number icon, highlight the numeral, and click the Align Right icon on the formatting toolbar. Click the Format Page Numbers icon and format your page numbers.

Press ENTER to drop one line and type Title Goes Here—Highlight And Type. Highlight it and click the Align Right icon on the Formatting toolbar. Highlight inside the box and click Format and Font to change the Font, Font Style, and Size. Click Close to exit the Header And Footer box. The page number and title will appear in the upper right of each page.

Permanent text. Anything you type in the template will be saved. Press ENTER, type Word Count:, and align right. This will save a space for your word count. Press ENTER. Type your name, address, phone number, fax number, and e-mail address as six lines on the left side of the page. You'll want this information single-spaced, so highlight it, click Format and Paragraph, and in the Line Spacing field, click Single. Click OK. The rest of your document will still be double-spaced.

Title. Now, let's work on the Title. Press ENTER twice and type TITLE. Press ENTER and type by. Press ENTER and type your name in capital letters. Highlight these three lines and click the Align Center icon on the Formatting toolbar.

Body text. Press ENTER twice and type: Start Body Text Here (Auto Indent On). To use the template, highlight this line and start typing.

Now you will want to save your template. The first step is to click File and Save As and then type a name, such as My_ Articles, and click Save.

Apply Custom Templates

When you're ready to use your custom template, click File, New, the General tab, and double-click your custom template. The format automatically opens as a document, not as a template. Highlight the appropriate sections and type your text. It will all be in the correct format.

Use these techniques to modify or create customized templates for all of the documents you use routinely and repetitively. Using customized templates eliminates the need to rework and reformat every document individually. Your work will be correctly formatted for the specific application when you create it, saving valuable time and reducing frustration. ■

by Risdon W. Hankinson, Ph.D.

Lotus 1-2-3

Using SmartLabels For Quick Calculations

- *Spreadsheets*
- *Beginner*
- *9.5 for Win9x*

If you like shortcuts, but you haven't used Lotus 1-2-3's SmartLabels feature yet, you should give it a try. A SmartLabel is a name assigned to a formula (such as Sum, Average, etc.) that you can enter in a workbook instead of typing the whole formula. For instance, if you have a column of numbers, just type Total at the end of the list and the sum appears. No formulas to type in, no menu commands to click.

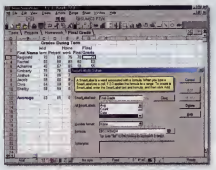
1-2-3 has several predefined SmartLabels, including Average (Avg), Total (Totals), Grandtotal (Grand Total), Subtotal (Sub Total), Maximum (Max), Minimum (Min), Median, Standard Deviation (Std), and Variance (Var). These labels use 1-2-3's @functions (shortcuts to specific calculations used in formulas) to perform calculations. The SmartLabel defaults use alternate spellings (such as Average as well as Avg), so typing in either label will access the same formula.

To use SmartLabels on a list of values in a column, type the SmartLabel in the cell below the list but to the left of the column, just as you would typically do with a label or heading. 1-2-3 will take the formula assigned to that SmartLabel, calculate the values, and place the result next to the label. If there are several columns, one SmartLabel will calculate all adjacent columns of data.

To calculate a list of values in a row, move to the first blank cell to the right of the row, then move one cell above the row and type in the SmartLabel. The results appear below this label for the entire row that contains data.

The formulas in the SmartLabels work the same way the @functions do. If a number in the list changes, 1-2-3 will recalculate the formulas for you automatically.

Don't worry if you already have a heading in a cell where you need to enter a SmartLabel. Just clear the cell and type in the SmartLabel. Once 1-2-3 tabulates the numbers, clear the cell with the SmartLabel and retype the heading. The calculations SmartLabels make are independent of the label and will remain. You can also format the SmartLabel with different fonts or colors, just as with any other text, without affecting the formulas they represent.



Create custom SmartLabels like this Final Grade label for shortcuts to formulas you use often in the course of your work.

SmartLabels will not make calculations in a cell that already has data in it; so make sure the cells that you want filled are blank. For easier viewing, you may want to place the SmartLabel a row or two away from the data, such as the blank row between the data and the Average SmartLabel in the illustration. You can have up to 10 blank columns or rows between the label and the list of data.

However, because SmartLabels operate on the data they are next to, you need to place them cautiously. In the illustration, if a user entered a Total SmartLabel under the Average label, the Total label would sum all the data above it, including the averages.

Creating SmartLabels

If you have a favorite formula that 1-2-3 doesn't provide a SmartLabel for, you can make a new one for it. Click File, User Setup, then SmartLabels Setup. Name your SmartLabel in the SmartLabel Text: field, then enter your formula in the Formula: field.

Clicking the @ button at the end of the field lets you choose an @function to add to your formula from a list in the resulting Select @Function dialog box. The functions listed work well with SmartLabels because they use the generic "list" argument (data you provide for an @function, as in @SUM(list)), which lets a SmartLabel use data in adjacent cells without having to specify each cell address.

You are not limited to functions from the list, however; you can type any valid @function in the Formula: field. Your formula can include fixed numbers, references to particular cells, or custom @functions you have created.

After you have entered the formula, click Add to add the new SmartLabel, then click Done.

1-2-3 stores SmartLabels with its program settings, not just with the current worksheet, so you can use predefined labels as well as the ones you create with any workbook.

If you need to tweak or delete a SmartLabel, go back to the SmartLabel Setup and select the label from the All SmartLabels: list. Make editing changes in the Formula: field, click Modify, then click Done. To delete the SmartLabel, click Delete, then Done.

You can turn off the SmartLabels feature by clicking File, User Setup, and 1-2-3 Preferences, then deselecting Use SmartLabels To Enter Formulas And Apply Formats in the Other Options: box. ■

by Tracey Dishman Patterson

Web Browsers

Using Netscape's Search Menu

- Online
- Beginner
- Netscape 6

If you can't find something on the Web, it might as well not even exist. Netscape took this idea to heart in developing the latest incarnation of its Web browser, incorporating a bevy of search options and tools along the way.

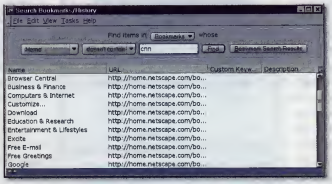
The Netscape 6 Search menu is the centralized place to access all of the browser's search-related features. Click the Search menu near the top of the browser interface or press ALT-S to take a gander at them.

Perusing The Menu

At the top of the list, we find Find In This Page, the simplest of Netscape's search tools. Rather than cast about through the Web in search of some tidbit of information, this command limits itself to the single page currently displayed in the browser window. Click Search, then Find In This Page, or press CTRL-F. Type the word or words you want to locate in the Find Text: field of the dialog box that appears. When looking for more than one word, keep in mind that Find will only locate an exact phrase: a search for John F. Kennedy, for example, will not find John Kennedy.

The Find dialog includes three additional options. The Match Case checkbox determines whether a search for "John", will also find "john." Wrap Around tells Netscape to continue searching from the beginning of the page after combing downward through text from the current position of the page, and Search Backwards does the same thing in reverse.

Find Again is the companion to Find In This Page. Once you've used Find, you can click Find Again (or press CTRL+G) to skip to the next occurrence of the word or phrase. Merely clicking the Find button a second time would do the same thing, but if you've already closed the Find box, the Find Again keyboard shortcut is faster.



The Search Bookmarks/History command on Netscape's Search menu is a great way to track down that really cool Web page you remember but can't seem to locate.

Search The Web fires up Netscape's LookSmart Net Search Page. You've no doubt seen search engines like this before, and it works about like all the others.

Rather than look through the Web at large, the Search Bookmarks/History command looks through aspects of the Web you've visited before. Bookmarks are the Web pages you've added to the Bookmarks list for easy reference; History includes pages you've visited in the past. Click the Find Items In drop-down button to select either bookmarks or history, then move to the next line to set up your search query using the Name and Contains drop-down lists. Type your search term in the open text field and click Find and watch the results appear in the window below.

Under My Sidebar Search Tab, users can choose whether they want a basic or advanced Sidebar Search. You can activate the Sidebar by clicking on the small vertical handle in the middle of the left edge of the screen. Choose between Basic and Advanced based on whether you want to be able to select among different search engines for a particular search or just settle for the default.

Narrowing It Down

Netscape offers five links to specialized search pages for particular kinds of searches. The Business command lets you head to a yellow pages-like area or look for stock quotes. Maps And Directions opens a MapQuest form to plot out your next trip. The People Finder loads up a white pages form to look for phone numbers and addresses. Reference Desk is a good place to start when you need an almanac, dictionary, or encyclopedia. Finally, Shopping Search takes you to a basic online listing of dozens of stores.

The Search menu's Internet Keywords command brings up a special page that explains Netscape's Keywords feature, which lets you quickly search for specific information using Netscape's address bar. For example, you can type search followed by search terms and press ENTER to run a general search. Specialized keywords such as Shop and Quote are even more interesting, and although most users probably won't memorize all of them, Netscape makes the list easy to find.

When you're wondering where to start on the Web, Netscape's Search menu makes a good first step. ■

by Alan Phelps

Going Online

GetYourOwnWebSite.com

- Online
- Intermediate

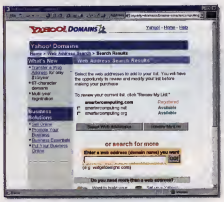
Many Web users have also become Web content providers, at least in a small way. If your family pictures, small business, or organization is on the 'Net, make everything easy to find with a customized domain name.

Domain names are the top-level names like smartcomputing.com used to denote particular spots of Webdom. Your ISP (Internet service provider) likely offers free server space for a Web page as part of your service agreement, but the address is probably something eminently forgettable such as www.myisp.com/users/2342. With your own domain name, you could tell visitors to head to a snappy name of your own choosing like www.myname.com as long as someone else hasn't already grabbed up your name of choice.

It is surprisingly easy to set up your own domain name these days, with a multitude of companies competing to register your name with InterNIC, the central domain name clearinghouse. A quick look around the Web using keywords like "register domain name" should give you plenty of choices. Along with the registration itself, many of these firms will redirect users who type in your new name to the address of your current site or provide space to set up a new site. Registering a domain name also typically sets you up with an e-mail address, such as me@myname.com.

Stake Your Name Claim

We'll take a closer look at the steps to register at Yahoo! Domains, a relatively simple site that seems to provide all the basics at a competitive price. Yahoo! charges $35 per year for a domain name, which includes a simple home page or a redirect to pages stored elsewhere. You also get an e-mail account accessible with any POP client such as Outlook Express, and the "Any@" service that forwards misaddressed mail sent to your domain to your e-mail account.



It doesn't take a lot of money or time to get your own domain name. At Yahoo! Domains, you can set up a domain name in a few minutes and have it up and running by the next day.

After pointing your browser at the Yahoo! Domains home page (http://www.domains.yahoo.com), start the show by typing in your dream name to see if it's available. Yahoo! provides access to names ending in .com, .net, and .org. Type in a word, name, or short phrase; spaces are not allowed, but you can use underscores and dashes. Click the GO! button for results.

Yahoo! quickly returns a list of your selected name followed by the three top-level domain extensions and whether each is presently registered. Most simple words and halfway-common last names are probably taken, but you can try adding initials or words such as "web" or "online." For example, we found that "smith" was taken in all three domains, but that "smithweb.net" was still up for grabs.

If the list of available names includes more than one choice, put a check mark next to your preferred name or names if you feel the urge. Click Select Web Addresses to save the address in your shopping list. On the next screen, you can either search for additional domain names to add to the list or click the Checkout button to move on.

On the Services page, Step 2 in the Yahoo! sequence, select the registration term and enter a password you can use later to manage your address. Then check the boxes about the various user agreements most people do not read. Click the button at the bottom of the screen to move to Step 3. You may encounter a Yahoo! Password screen next, after which Yahoo! may ask you to set up a Yahoo! Wallet account, which makes shopping at Yahoo! sites more convenient. Fill in the required information and proceed through the Payment screen. After you've submitted everything, your new domain name should be functional after about 24 hours. To test it, just type the address in your Web browser's Address Bar. A default home page should appear.

Where Am I?

If the name you really wanted is taken, don't give up quite yet. It may still be available—for a price. Try typing the name into your Web browser and see what pops up. If you're looking for an address based on your last name, chances are you'll come across the pages of MailBank.com, a company that shrewdly registered some 70% of all American last names before most of us thought about it. While you can't buy the name back, you can pay to use a version of it, such as bob.smith.com instead of smith.com.

That's dot-capitalism for you. ■

by Alan Phelps

Microsoft Excel 2000

Get A Better View

- Spreadsheets
- Intermediate
- 2000 for Win9x

At times you may have thought the screen area in Excel was too cramped and cluttered with toolbars, tabs, and a host of other screen elements you don't really use. Or, perhaps you've felt the opposite was true: You'd like more buttons and tools available on-screen. Either way, you're in luck. Excel lets you exert a tremendous amount of control over how the application window is displayed, and with a click or two, you can customize Excel to display the options you most want to see. Better yet, most of the settings you'll want to change are conveniently located in the View menu or the Options dialog box.

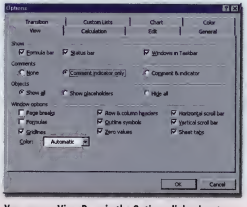
View Menu Options

You can temporarily hide most of Excel's screen elements (and focus on the worksheet data) by choosing View, Full Screen. This command hides your toolbars, Formula Bar, and Status Bar, leaving only the Menu bar and your worksheet displayed. You can redisplay all of the screen elements by choosing View, Full Screen a second time.

Even though the Status and Formula Bars display by default, you can gain more screen space in which to work by choosing View, Formula Bar (or View, Status Bar) to turn them off. The commands work like a toggle switch: To redisplay these screen elements, choose Formula Bar or Status Bar from the View menu a second time.

You can also pick and choose which toolbars to display on-screen. Click View and Toolbars and then check the toolbar(s) that you want to view. Hide a toolbar by unchecking it on the toolbars list. To quickly show (or hide) a toolbar, right-click the Menu bar and then choose a toolbar on the list.

Finally, you can choose Page Break Preview on the View menu to see how your worksheet is set up for printing. Excel determines the default location for each page break based on the paper size and margin settings. However, you can manually insert your own breaks, and Page Break Preview is the perfect place to do this. After you display your worksheet in Page Break Preview, you can drag the dashed, blue borders between pages to change how much space Excel uses to print each page. When you're finished changing the page breaks, choose View, Normal.



You can use View Page in the Options dialog box to quickly change how Excel displays.

Choose An Option

Besides the View menu, the Options dialog box offers ways to change how your worksheet is displayed. To open this dialog box, click Tools, Options, and click the View tab. In the Show section, you can clear the boxes for Formula Bar and Status Bar to suppress their display.

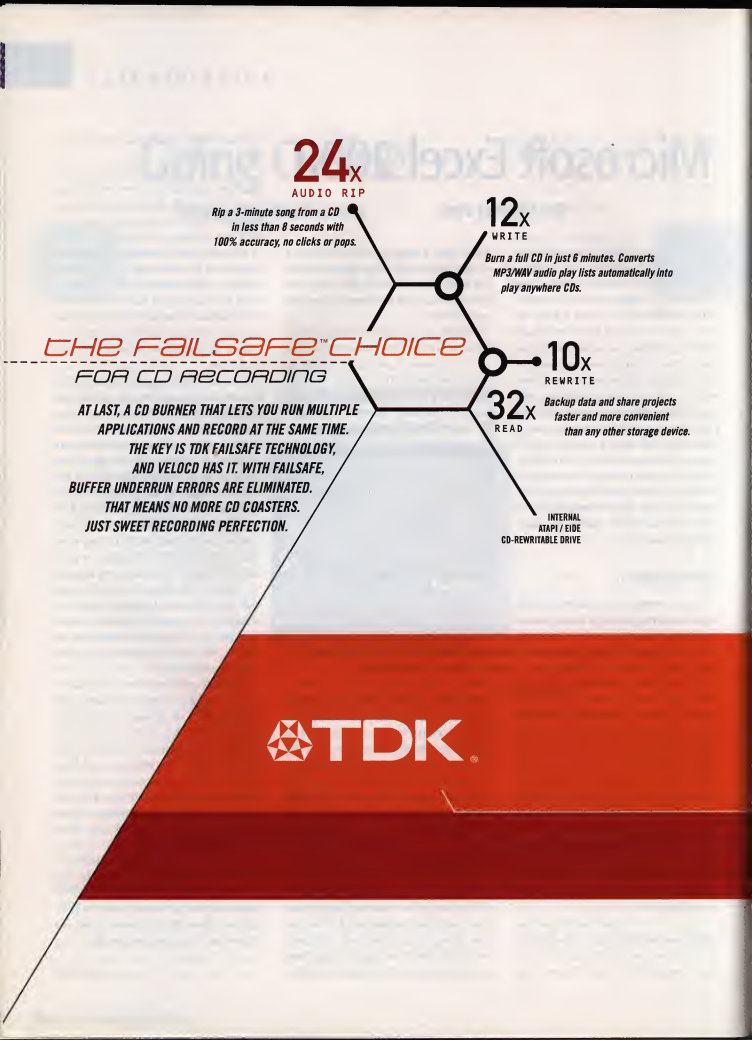
You can also use View to dictate how the comments in your worksheet look. Although the default setting displays only the comment indicator (the red triangle in the upper corner of any cell with a comment), you can choose to always display the entire comment by selecting the Comment & Indicator radio button. On the other hand, if you don't want anyone to even suspect that there are comments in your worksheet, you can click None.

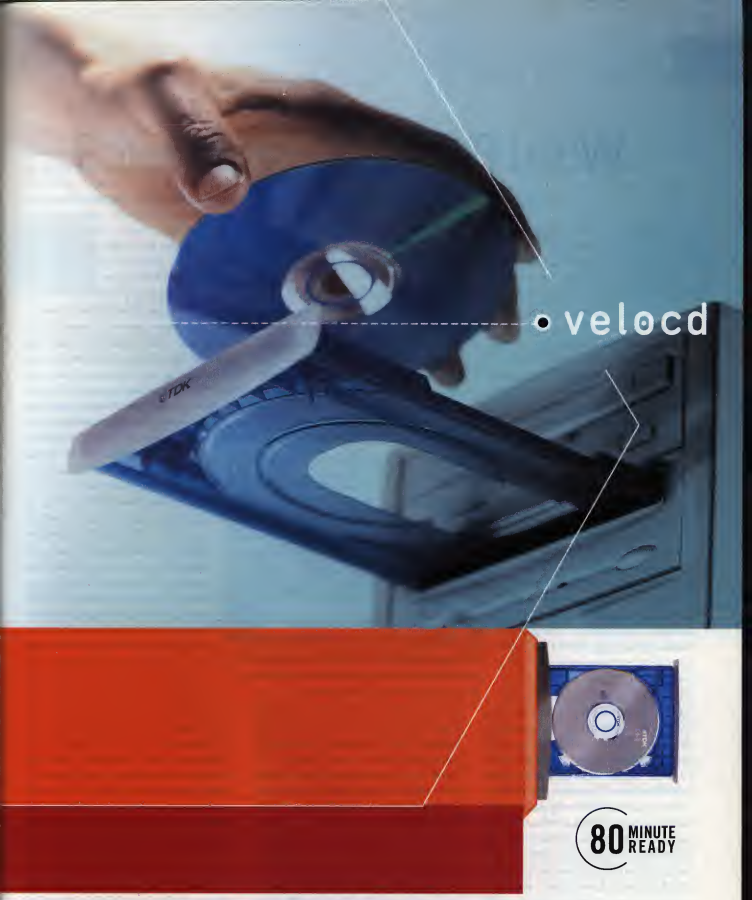
You can also determine which objects (such as pictures) appear. By default, all objects display on your worksheet. However, graphics-laden worksheets tend to bog down your system, so sometimes it's handy to only show a placeholder where the object is located. You might want to suppress the display entirely. For example, you can show only a placeholder while you're entering new data (and recalculating the worksheet), but then change the display to show all objects just before printing. To dictate how objects are displayed in your worksheet, click the Show All, Show Placeholders, or Hide All radio buttons in the Objects section.

Finally, you can exert great control over which window elements are displayed by checking (or clearing) the boxes in the Windows Options section. For example, you can turn off vertical and horizontal scroll bars or the sheet tabs by removing the checks from the checkboxes. You can even turn off the grid pattern on the worksheet by clearing the box for Gridlines.

So take a few minutes to customize your Excel application window for the way you work. Get rid of the clutter of elements you never use and you'll be able to utilize the remaining space for what you really need to view. ■

by Linda Bird


24X
AUDIO RIP
Rip a 3-minute song from a CD in less than 8 seconds with 100% accuracy, no clicks or pops.
12X
WRITE
Burn a full CD in just 6 minutes. Converts MP3/WAV audio play lists automatically into play anywhere CDs.
10X
REWRITE
32X
READ
Backup data and share projects faster and more convenient than any other storage device.
INTERNAL
ATAPI / EIDE
CD-REWRITABLE DRIVE
the Failsafe™ CHOICE
FOR CD RECORDING
AT LAST, A CD BURNER THAT LETS YOU RUN MULTIPLE APPLICATIONS AND RECORD AT THE SAME TIME. THE KEY IS TDK FAILSAFE TECHNOLOGY, AND VELOCD HAS IT. WITH FAILSAFE, BUFFER UNDERRUN ERRORS ARE ELIMINATED. THAT MEANS NO MORE CD COASTERS. JUST SWEET RECORDING PERFECTION.
TDK.



Mix your music and develop your Sweetspot for digital audio recording: www.velocd.tdk.com.

Word Perfect 9

Footnotes & Endnotes

- *Word Processing*
- *Intermediate*
- *9.0 for Win9x*

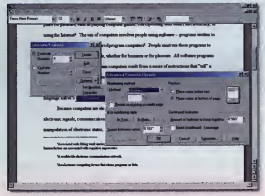
Too many details can make a document long and difficult to read, yanking readers away from the original point. To keep text concise, consider adding footnotes or endnotes to clarify main points outside the body of the text. Footnotes appear at the bottom of the page on which they are referenced; endnotes appear at the end of the entire text, section, or chapter. WordPerfect lets you add either and places the notes where they belong.

Each footnote or endnote requires a number or symbol by which to reference it. WordPerfect inserts the symbol in your text and beside the corresponding note. Place the cursor to the right of the last letter of the text that calls for a footnote or endnote reference number. From the Insert menu, click Footnote/Endnote. In the Footnote/Endnote dialog box, choose either type. By default, note numbers are consecutive, starting with 1. Each time you insert or delete a note in the text, the numbers are adjusted. For example, if you insert a new note between your first and second note, the new note will be 2, and the old second note will be 3.

Click Create to activate the Footnote/Endnote Property Bar. WordPerfect places a superscript number in the text. For footnotes, a horizontal rule appears at the bottom of the page, with a corresponding superscript number below it. Endnotes appear at the end of the document. Your cursor will be in position for you to type the note text. If you have the note text in another location, you can copy and paste it in. Click in the main text to continue working, or click the Close button on the Footnote/Endnote Property Bar. In Draft View, the note area will be hidden when closed.

Working With Notes

If you chose endnotes, you can change their position from the end of the document to the end of a chapter or section. Place your cursor at the point where you want the endnotes to appear. On the Insert menu, click Footnote/Endnote. Select Endnote, then click the Endnote Placement button. Click the Insert Endnotes At Insertion Point radio button. To restart the numbering for each chapter or section, click the Insert Endnotes At Insertion Point And Restart Numbering radio button.



Set the advanced options for all footnotes or endnotes when you first access the Footnote/Endnote dialog box or wait until you're done with the document.

You can also restart footnote numbers in a new section or chapter. When setting the first note in each section, replace the default number that appears in the Footnote/Endnote dialog box. Click the Options button and click Set Number. In the Footnote Number dialog box, retype the number in the New Number box or choose Increase By 1 or Decrease By 1 if desired. Click OK, then click Create.

To edit a note, open the section or document. From the Insert menu, click Footnote/Endnote. In the dialog box, type the number of the note to edit in the box beside Footnote or Endnote as appropriate. Click the Edit button. Your cursor moves to the beginning of the corresponding note text. In Page View you can simply click the note.

You can customize notes in a document in several ways. Generally, the notes' font size should be at least two sizes smaller than the text. You can also choose a font, space between notes, and the type of numbering you'd like. If notes span more than one page, you can have WordPerfect insert a Continued message. You can also change the placement of the notes on a page and the size of the horizontal separator bar above the notes.

From any point in the text, open the Insert menu and click Footnote/Endnote. Click the Footnote or Endnote button, Options, and Advanced. In the Advanced dialog box you can change the Numbering Method, Position (directly after text or at the bottom of a page), a size for the note area before notes break to another page, and the amount of space between notes. To change the font style of the note text, click In Note under Edit Numbering Style. Although not recommended, you can change the font style of the note in the document text. Click the In Text button and make a selection. You may encounter a problem where the entire text changes font, and you won't be able to use Undo. Instead, go back into the dialog box and remove the errant formatting from the Reveal Codes portion of the box and reset your font.

To adjust the Separator bar that precedes the note area, in the Footnote/Endnote dialog box click Options, then Separator. Make your choices and click OK. ■

by Anne Shevrin

PowerPoint 2000

Perk Up Your Presentation With Online Help

- Presentation
- Intermediate
- 2000 for Win9x

If you're a PowerPoint guru, you've probably explored many of the resources and commands available in the program. For fresh PowerPoint ideas, you can always turn to the wealth of online resources.

You can pull in clip art, multimedia clips, and research tips and tricks for using the program effectively. Here, we'll explore tools and articles available through Microsoft's Web site.

PowerPoint provides a good jumping off point to Microsoft's Web resources from in the software. To tap into these online resources, connect to the Internet and click the Help menu and Office On The Web. PowerPoint fires up your browser (if necessary) and displays Microsoft's Office Update Web page. Click the link for your area of the world, such as United States.

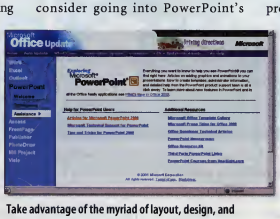
After the page displays, you'll notice that it includes links to tons of data about PowerPoint. For example, you can click PowerPoint Assistance to display a list of links for articles, technical assistance, and Tips And Tricks For PowerPoint 2000. This Assistance page also helps you tap into online templates, books on Power-Point, and PowerPoint newsgroups. Here's a quick run-through of some of the more helpful links on Microsoft's Assistance Web page (http://office update.microsoft.com/features /AstPowerPoint.asp).

As you'd expect, Microsoft provides a number of interesting articles on using PowerPoint more effectively. For example, you can skim though the articles to find out how to "Run Powerpoint On Two Monitors," "Create Custom Shows Within A Presentation In PowerPoint 97 /2000," and "Insert Slides From One PowerPoint 2000 Presentation Into Another." To see a list of the topics, click the Articles For Microsoft PowerPoint 2000 link. You can see brief descriptions of the articles by checking the Show All Descriptions box. When you spy an article you want to read, just click its link.

To delve even more deeply into Microsoft's extensive information, consider going into PowerPoint's Knowledge Base, an electronic library with more technically oriented articles. To do this, click the link for Microsoft Technical Support For PowerPoint. Click a link, such as Knowledge Base Articles About PowerPoint 2000, Support Highlights For PowerPoint 2000, or Frequently Asked Questions About PowerPoint, from the PowerPoint Support Page. The steps necessary to access information depend on which link you select, but they're generally clear and easy to follow. For example, you can click the Knowledge Base Articles link and then enter a topical keyword by which to search.

Still need more ideas to help you quickly improve your productivity? On the Assistance page, click the link for Tips And Tricks In PowerPoint 2000 and then choose a topic.

You can also try clicking the Office Developer Technical Articles, which are, well, a bit technical. Despite their more in-depth nature, this electronic library of articles includes a wealth of interesting articles; the biggest danger is you'll spend your afternoon reading them instead of creating that presentation for tomorrow's meeting!



Take advantage of the myriad of layout, design, and graphics resources on Microsoft's Web page.

Join A Newsgroup

Finally, you can subscribe to a PowerPoint Newsgroup, which allows you to post and reply to messages related to using PowerPoint. You'll probably find that there's a wealth of knowledge being bandied about in the group, and it's considerably cheaper than technical support. To tap into this resource click the PowerPoint Newsgroups hyperlink on the Assistance page.

On the page with the listing of newsgroups on it, click PowerPoint For Windows, which activates your Newsreader. If you've never wandered electronically into this newsgroup before, you'll need to click the Subscribe button to access the messages. After you initially subscribe, you'll see a topical listing of messages related to PowerPoint. Click a message to see the information; click Reply or Reply All to send a message to the individual or group, respectively. You can also ask for help by clicking the New Post button and then typing your question.

Next month we'll explore some of the non-Microsoft Web sites that you can use to grab a template, get design ideas, download clip art, and gain insider PowerPoint knowledge. Until then, spend a few minutes (or hours) tapping into the resources available on Microsoft's Web site. ❚❚

by Linda Bird

Print Shop Deluxe 10/11

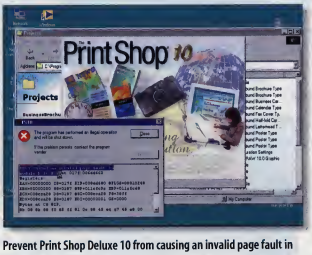
Work Out Some Kinks

- Desktop Publishing
- Intermediate
- 10/11 for Win9x

Print Shop Deluxe 10 delivers personal publishing prowess with more than 8,000 professionally designed project templates, 160,000 graphics (including images, photos, and animated GIFs), feature-rich companion products (3D Greetings Personal Edition, Print Shop Photo/Multimedia Organizer, Serif DrawPlus 3.0, Print Shop Photo Pro Express, and Ultimate Mail Manager), plus integrated Web publishing offering 11MB of free Web hosting space. The program does everything from business cards to brochures with a user friendly but functional interface. If Print Shop occasionally crashes, what can you do?

When Print Shop 10 refuses to launch and you may see "Print Shop 10 Caused An Invalid Page Fault In Module MFC42.DLL," you can resolve this by deleting the User.ini file located in C:\PROGRAM FILES\BRODERBUND\THE PRINT SHOP\USER00* (where * refers to all USER00 folders, and C:\ is the default location of your Print Shop installation). Simply uninstalling the program won't work because Print Shop's Uninstaller doesn't delete any User files.

To delete USER00*, double-click My Computer and the drive icon where Print Shop 10 is installed. Double-click the PROGRAM FILES folder, Broderbund, and The Print Shop. Double-click the USER00* folder, right-click the icon of the User.ini file, and select Delete from the pop-up context menu that appears. When the Confirm File Delete dialog asks if you want to send User.ini to the Recycle Bin, click Yes. Windows deletes the file. If you have more than one USER00* folder, repeat these steps for the User.ini file in each one. Finally, click the File drop-down menu, then click Close. Restart Print Shop Deluxe 10. This should solve the problem.



Prevent Print Shop Deluxe 10 from causing an invalid page fault in module MFC42.DLL by deleting all Print Shop Deluxe 10 User.ini files.

Windows' Documents menu (click Start, Documents) provides single-click access to the 15 files you've used most recently. Clicking a document listed in the Documents menu prompts Windows to open that document in the application that created it. Perhaps you've tried this with Print Shop Deluxe by navigating to C:\PROGRAM FILES\BRODERBUND\THE PRINT SHOP \USER00* and double-clicking the PROJECTS folder, and you've seen an error message just as Print Shop launches. The message says, "This Program Has Performed An Illegal Operation And Will Be Shut Down" because "Print Shop 10 Caused An Invalid Page Fault In Module PS10.EXE."

According to Print Shop Deluxe 10 tech support, this crash occurs because of how Print Shop 10 registers extensions. The only way to resolve the problem is to launch Print Shop, then open the project. Alternatively, you could also uninstall Print Shop 10 and upgrade to Print Shop Deluxe 11. The latest version of Print Shop opens projects from both the Documents menu and the USER00*\PROJECTS folder.

Installation Advice

Print Shop Deluxe 11 features more than 10,000 project templates, more than 185,000 graphics, professional Web design tools, 11MB of free Web hosting space, Ultimate Mail Manager, Print Shop Photo Organizer 1.8, Serif Draw Plus 3.0, and Photo Pro 2.0 Express (an image editor). However, it lacks 3D Greetings Personal Edition. This program works with Print Shop Deluxe 11 so if you want to keep using it, do not uninstall it when deleting Print Shop programs through the Control Panel's Add /Remove Programs (click the Start button, Settings, Control Panel).

After uninstalling Print Shop and its components, restart your computer and install Print Shop Deluxe 11. When complete, restart your computer, launch Print Shop, and complete the Personal Information Setup. Next, click Visit Us Online. You're automatically taken to the Expressit.com Web site. Examine the projects available free and download any that look interesting. Also, click The Print Shop link (located in the Communities section of the Expressit.com's Table Of Contents) and click the link to Print Shop's technical support Web site. Check for program files, updates, and patches on the Product Updates page. ❚❚

by Carol S. Holzberg, Ph.D.

Quicken 2001 Deluxe

Get Some (Real) Financial Advice

- Personal Finance
- Intermediate
- 2001 for Win9x

Everyone seems to have some investment advice for you these days. Your co-worker read an article here. Your neighbor heard a TV news report there. Even your brother-in-law, who still hasn't paid back the $50 you loaned him, has discovered some inside information; never mind that he couldn't even spell Wall Street.

Sure, they're all just trying to help, but it's probably a good idea to supplement all the helpful hints you get with some sound financial perspective now and then from a source that you know you can trust. We'll show you how to use Quicken's helpful Calculators, Asset Allocation, and 401(k) Advisor features to make yourself a better investor.

Calculators

These Quicken tools are fairly easy to use, so we'll just touch briefly on three of the most popular calculators. Click the Planning menu, point to Financial Calculators, then click the item you want to use. Within each calculator, fill in the text boxes as directed, then click Calculate.

Savings. This calculator can determine your future investment savings balance based on the amount you're saving per year and the yield you expect to receive. You'll learn whether you need to increase your contributions or try to increase your yield (or both) to get that nest egg built up.

College. Use this calculator to determine whether you're saving enough for college. You'll need to provide an estimate of the overall college expenses, but once you find the information you need you can generate a custom deposit schedule that runs right up to graduation.

Retirement. This calculator is a little more complex than the others because some retirement savings are tax-sheltered investments. Don't forget to figure in social security benefits.

Quicken's 401(k) Advisor will help you make sure you're making the correct investment choices for this important tax-deferred retirement account.

Asset Allocation

Building a portfolio with the right mixture of several asset classes (small- and large-cap stocks, bonds, etc.) will minimize your risk while optimizing returns. The Asset Allocation Guide helps you find the balance that's right for you.

Click the Investing menu, then Asset Allocation Guide, and follow its instructions. Afterward, it's helpful to periodically click Investing, then Portfolio View. Click the Update menu and Get Asset Classes to have Quicken connect to the Internet and download the asset classes for your investments.

Finally, click Investing and then Investing Center. In the upper-right corner of the Investing Center page, you'll see pie charts representing your current asset allocation versus your target allocation. Click Current or Target to zoom in on a chart.

401(k) Advisor

Quicken's built-in 401(k) advice feature is improved for 2001. Click Investing, Investment Services, and Personalized 401(k) Advice to start. You can choose from two levels of advice: free automated advice from the Web or live, fee-based advice from TeamVest's professional advisors.

You may want to avail yourself of TeamVest's expertise at some point, but for now we'll focus on Quicken's free advice. Click the Get Free Online Advice text link to run Quicken's 401(k) Advisor, and the software will open your Internet connection and take you to a secure server session.

At the Quicken 401(k) Advisor window, click Start Here For Free, then click the First Time Visitors button and create a User Profile. Quicken will ask you to enter a variety of personal information concerning your current financial situation and your plans for the future. Click the Next button after entering your information to move from screen to screen. The process will take 15 to 30 minutes. To save time, be sure to have your latest investment balance statements available (the 401(k) Advisor won't ask for account numbers or passwords, just your balance amounts). Once you've finished, the 401(k) Advisor will let you know what you can do to improve your situation.

Be forewarned that TeamVest will constantly bombard you with chances to upgrade from the free service to the fee-based advice service while you use the 401(k) Advisor. If you don't mind wading through these offers, you'll find the 401(k) Advisor is a helpful tool for making sure you stay on track with your retirement savings goals. ■

by Kyle Schurman

Microsoft Money 2001 Deluxe

Track Your Investments, Part I

- *Personal Finance*
- *Advanced*
- *2001 for Win9x*

If you're already a pro at tracking accounts in Microsoft Money Deluxe 2001, tracking your investments should be a fairly easy process. Even if you've never used Money before, however, you can have your investment accounts entered in very little time, thanks to the software's user-friendly interface.

In part one of this two-part series, we'll show you how to enter your investment accounts and transactions in Money. In next month's issue, we'll discuss using Money's Internet features to obtain the most current information about how your investments are performing.

First-Time Users

We'll start with the steps required for setting up an investment account in Money. Click Investing, then Investing Center. Click the Create A New Account link under Common Tasks, then type the name of your brokerage in the Held At: text box to begin. Click Next to move through each window in the setup process.

Next, select the type of account you want to create. For example, if it's a 401(k) or IRA account, click Retirement. Then give the account a unique name, select the exact type of account it is, tell Money who owns the account, and answer a few more basic questions.

Eventually, you'll reach the final window, where Money will tell you the account is finished. You now can add the investments you hold. Type the name of the investment security and then indicate whether it's a mutual fund, bond, or stock. Next, enter your investment's trading symbol; you should find it listed on your brokerage statement. If you don't have the symbol, click Find Symbol, and Money

To enter a transaction into your investment account register, click the New button in the lower portion of the window.

will dial up the Internet to find it for you (if Money can't locate it, try searching for part of the name and then select your security from the list of matches Money returns).

Enter the number of shares you own for this type of investment. You can also enter the price you paid and the date you purchased them if you want to track the transaction for taxes.

Continue adding investments as needed, or click No and the Finish button to end the process.

To set up additional accounts, return to the Investing Center and start the process again.

Entering Transactions

You can add new transactions at any time once you've created your accounts. Just click the Accounts & Bills menu followed by Accounts List. Click on the investment account you want to work in.

Now things become a little tricky. Within each account, Money splits the account into investment security holdings (stocks, mutual funds, and bonds) and cash holdings. Money treats the investment holdings and cash holdings as separate (but linked) accounts, even though they're in the same brokerage account.

To make a cash deposit to your investment account, click the Cash Transactions text link along the left side of the account window. You'll enter all cash deposits to the investment account in the register window that appears. At the bottom, click the Deposit tab and the New button. In the From text box, enter the type of deposit you're making (if you're simply transferring money from another account, click the Transfer tab instead). Enter the amount and the category and click Enter.

Then, when you're ready to use that cash to make a purchase, click the Investment Transactions text link. Click the New button at the bottom of the window again, and enter the appropriate information. (If you enter a new security, you'll have to enter information about it as we described earlier during the account setup process). When you select Buy from the Activity: text menu, Money will ask you to enter the origin of the funds used to buy the security. In the Transfer From: text menu, select the cash account linked to this investment account. After entering all of the necessary information, click the Enter button, and the transaction will appear in the register at the top of the window. ■

by Kyle Schurman

Microsoft Word 2000

Use AutoText & AutoComplete

- *Word Processing*
- *Advanced*
- *2000 for Win9x*

Boost productivity with Word 2000's timesaving document formatting options. Features like AutoText and AutoComplete minimize the keystrokes you type for commonly used text. For example, AutoText can store names, mailing addresses, distribution lists, boilerplate paragraphs, and even graphics.

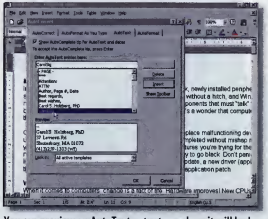
Every AutoText entry has a unique name. To access AutoText, click the insertion point where you want an AutoText entry to appear. Begin typing the AutoText entry's name (or if you've already activated AutoComplete, just type the first four characters of the name). Word then pops up a ScreenTip window containing the complete text (or graphic) associated with that AutoText entry. To accept Word's suggestion and automatically insert it, press ENTER or F3. To ignore the suggestion, simply continue typing.

Creating An AutoText Entry

Turn on AutoComplete by clicking the Insert menu, pointing to AutoText, then clicking AutoText in the submenu. If necessary, click the AutoText tab in the resulting AutoCorrect dialog box. To activate AutoComplete, click the checkbox next to Show AutoComplete Tip For AutoText And Dates and click OK.

To see the current list of AutoText entries, revisit the AutoText tab in the AutoCorrect dialog, then scroll through the list of items in the window beneath the Enter AutoText Entries Here: field. Click an entry to highlight it, and a sample appears in the Preview box below.

You have two options when creating new AutoText entries. For simple text strings like names or greetings, type the text you want AutoText to remember in the Enter AutoText Entries Here: field, then click Add. Word saves your AutoText entry as part of its list and makes it available to all documents by storing it in its Normal.dot template.



You can preview an AutoText entry to see how it will look before you insert it in a document.

Normal.dot is a formatting guide Word uses to preserve default text styles, margin settings, and other formatting choices for standard documents. To preview your entry, scroll through the list of AutoText names, then highlight it. Keep in mind that the AutoCorrect dialog box doesn't give you control over AutoText formatting.

The second option is a bit quicker and lets you control the font, size, and other formatting aspects of your entries. While working with text in an open document, highlight the text (or graphic) you want to store as an AutoText entry. Click the Insert menu, point to AutoText, and click New. Name your AutoText entry in the Create AutoText dialog box that appears, then click OK. If your entry is longer than a few sentences and paragraph formatting is important, click the Show/Hide paragraph tool on the Standard toolbar to reveal paragraph marks prior to creating your new entry.

If you would rather store your AutoText entries in a template other than Normal.dot, tell Word where you want them. Click Tools, then click Templates And Add-Ins. Click Organizer, then select the AutoText tab in the Organizer dialog. Each window in the dialog box lists items available in a specified template. Scroll through the list in the Normal.dot template on the left to see what's there.

Click the Close File button on the right. Click the Open File button, then select the template that will store your AutoText entry. Click Open. Word displays any available AutoText entries for that template. Scroll through the list of entries to look for the AutoText entry you want to store there. If it is unavailable, check the list of entries in the window on the left, click the desired entry to highlight it, then click Copy to make it available to the specified template. Highlight the item again in the left window, click Delete, and click Close. Follow on-screen prompts to save document template settings.

Deleting AutoText Entries

To delete AutoText entries, click the Insert menu, point to AutoText, then click AutoText in the submenu. Highlight an item and click Delete. To delete several items simultaneously, click the Tools menu, click Templates And Add-Ins, click Organizer, and click the AutoText tab in the Organizer dialog box. Press and hold CTRL while clicking nonadjacent items, then click Delete. If the items you want to delete are adjacent, press and hold the SHIFT key while clicking the first and last items on the list, then click Delete. ■

by Carol S. Holzberg Ph.D.

HTML

Hit The TARGET

- HTML
- Intermediate

When you work hard to get visitors to your site, it's not too smart an idea to show them the exit the minute they arrive. Yet, many sites do just this. When you include links to an external site on your home page, you can find you've unwittingly created a situation where visitors come to your site, see your home page, click a link and are immediately spirited away. All your work in attracting them to visit your site will be ruined by poor planning. We'll show you a way to avoid driving off visitors as we explore a little known use of the TARGET attribute. You may be familiar with using TARGET on a frames site, but it has another use that can help you keep visitors where you want them—on your site. We'll see how this can be used with thumbnail images too and, while we're exploring options for moving visitors around, we'll show you how to move them around inside a single Web page.

When you include a page of external links on your Web site, you should do so with the knowledge that you're inviting your visitors to leave. Avoid including these links on your home page so visitors must visit at least one or two pages on your site before they go elsewhere. When you do offer the links, use the TARGET attribute to open the new page in its own browser window, keeping your site visible on the screen in its window.

For example, this link to the *Smart Computing* Web site will open in a new browser window when your visitor clicks the link:

<A HREF="http://www.smartcomputing.com" TARGET = "_blank"> Smart Computing magazine </A>

The new window is opened because of the addition of the TARGET attribute to the anchor tag. Create the underscore in front of the word "blank" by holding SHIFT as you press the DASH key that appears to the right of the ZERO key on most keyboards. This _blank value tells the browser to open a new browser window and to load the linked page in this new window.

When you're creating an online Photo Album, you can save your visitors the trouble of continually selecting the browser's back button by using the TARGET attribute.

Not only is this a smart tool for keeping visitors on your site, but it will also work well for your visitors in the situation where you offer a page of links. Your visitor won't have to press the Back button numerous times to find the links page again, because it won't have been lost as they browse the links you've provided.

Thumbnails

This same TARGET attribute will work for an online photo album where you display thumbnail images linked to larger images. If you create a link like the following, the image smallcat.jpg will appear on-screen, and when the visitor clicks it, the screen will clear to display the image largecat.jpg.

<A HREF="largecat.jpg"><IMG SRC="smallcat.jpg"></A>

The problem with implementing a photo album this way is that your visitor must repeatedly click an image then click the browser's Back button to return to the page containing your thumbnails. However, if you add the TARGET attribute to your tag, the larger image will appear in its own browser window.

Here's how the tag would look with this added attribute:

<A HREF="largecat.jpg" TARGET ="_blank"><IMG SRC="smallcat.jpg"></A>

Jumping Around The Page

When you have a text intensive page, it will help your visitor move around if you include links that "jump" your visitor from a position near the bottom of the page back up to the top of the page.

To create this link, begin at the top of the page where you want the user to be able to jump and create an anchor around a word or words at the top of the page like this:

<A NAME = "top">Topics List </A>

This anchor won't affect the formatting of the text on the page so it doesn't matter which text you wrap it around. Move to the foot of the page and create this link that refers to the "named" anchor you just created:

<A HREF="#top">Top of Page </A>

The pound (#) symbol instructs the browser that this links to a named target and not to another Web page. Type the name using the same mix of capital and lowercase letters each time.

Using this process, you can create similar links from a list of topics at the top of the page that will "jump" your visitor to the position in the page where the topic appears. ■

by Helen Bradley

prudential.com

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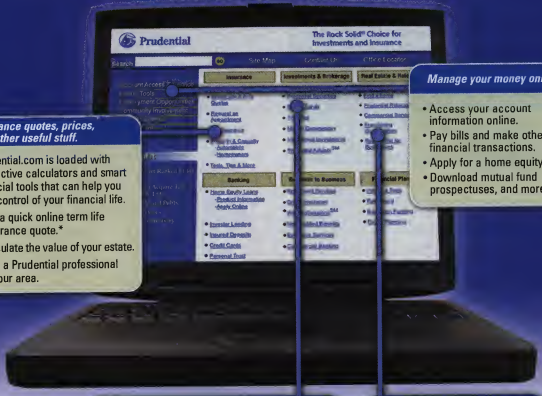

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IFS-2000-A056103

Quick Tips

Secrets To Succeeding In Common Tasks

Send Us Your Tips!

We're looking for your best hardware, software, and Internet tips. Send detailed instructions for using your tips, along with names of the specific products they work with and the name of the city where you live, to editor@smartcomputing.com. We'll include the best reader submissions in upcoming editions of Quick Tips and send you a *Smart Computing* gift if we use your tip.

AGP Slots

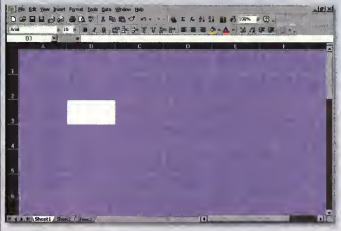
✓If you are buying a new PC and think you may want to upgrade the video card at some point, make sure the new PC has an AGP (Accelerated Graphics Port) slot. Many new computers use an integrated video chip, which does not require an AGP slot in the motherboard. If your new computer doesn't have an AGP slot, then you won't be able to upgrade to an AGP video card down the road.

Windows 98/Me

✓When you add a new program to your computer, it appears at the end of the list in the Programs menu. It won't be long before your Programs menu is a haphazard mess of programs listed in no particular order. If you use Windows 98/Me, you can resort this list so it appears in alphabetical order. Click the Start button, then Programs. Put your mouse cursor anywhere in the Programs menu and right-click. Then, in the pop-up menu that appears, click Sort By Name. This is a good idea because you can find the programs you want to use more quickly.

Excel

✓Excel users often want or need to resize one or several cells when they're working in a spreadsheet. Here's an easy way to resize all of the cells in a spreadsheet. Click a cell and press CTRL-A to select all cells in the spreadsheet. Move your cursor to the edge of one of the lettered cells at the top of the document and resize it as necessary. Do the same thing with one of the numbered cells at the left side of the spreadsheet. All the cells will be resized to match the size of the cell you modified.



Save time reformatting by resizing all of your Excel cells at once.

Optical Drives

✓More and more users are buying a second optical drive, such as a CD-RW (CD-rewriteable) drive, a DVD (digital versatile disc) drive, or even just a faster CD-ROM drive. If you buy a second optical drive, be sure to connect it to your sound card. Most sound cards have an additional connector for a second optical drive (it'll probably be a white connector that looks very much like the one your original optical drive is plugged in to). Some PCs have an integrated sound chip rather than a sound card, so a second audio connection may not be available.

USB Ports

✓Some computers' motherboards can handle more USB (Universal Serial Bus) ports than the PC came with, without filling a PCI (Peripheral Component Interconnect) slot with a USB adapter card. You can buy two extra ports with cables for about $12. Connect them carefully according to the motherboard manufacturer's directions and then enable them in your computer's setup after a reboot and/or by moving jumpers on the motherboard. Some new USB ports come mounted on an expansion port plate, which may still block an expansion slot from other uses. You can unscrew the ports from the plate, though, if your computer case has USB-sized holes elsewhere.

Windows Media Player 7

✓If you use Windows Media Player 7 to encode digital music from an existing CD, you can correct any hisses, pops, or other imperfections that might be present on the CD. Click Tools and select Options. In the Options window, click the CD Audio tab and put a check in the box next to Use Error Correction in the Copying Settings section. When you encode the CD into a digital music format, Windows Media Player will try to remove as many problems as possible. It may take longer to encode a track when using error correction.

Win9x

✓Windows 95/98 (Win9x) isn't a perfect family of operating systems, but some hangs (when the computer stops responding to the keyboard or mouse) aren't its fault. If hangs occur about 15 minutes or longer into a computing session regardless of the programs you're running, some of your computer's components might be getting too hot. Clean out

your computer's dust bunnies and make sure its fans are working. If you have a fast 3-D graphics card, make sure there's enough room between it and other expansion cards for some airflow. If it doesn't have a fan, see if you can add one.

Optical Drives

✓Your desktop computer may have an open 5.25-inch drive bay just waiting for a hot new CD-RW or DVD drive, but consider how that new drive will affect airflow in the computer's case. Hard drives with faster spindle speeds, such as 7,200rpm or 10,000rpm (revolutions per minute) need more room to breathe than 5,400rpm drives. If the new DVD or CD-RW drive sits on top of the hard drive, for example, the latter will build up heat that will shorten the life of both drives over the long term. Consider an external 1394 (FireWire) optical drive along with a 1394 adapter card, if necessary.

Outlook

✓Microsoft Outlook lets you quickly map the location of an address you have listed in Contacts (click Contacts from the Outlook Shortcuts toolbar). Open a contact in Outlook and click the Display Map Of Address button in the toolbar (looks like a yellow road sign). If you're connected to the Internet, Outlook will pass the address to Expedia.com, which will show you the address on a map. Expedia.com requires all addresses to conform to a specific format (for instance, no nine-digit ZIP codes). Expedia.com will ask you to correct any problems with incorrectly formatted addresses.

Look closely at MusicMatch Jukebox's Recorder window (bottom), and you'll see the None option. This clears the tracks MusicMatch will rip so you can choose just the ones you want.

MusicMatch Jukebox

✓It's hard to pass up MusicMatch Jukebox 6. After all, it can **rip** (extract) CD-audio tracks to MP3 files and even **burn** (write) audio CDs with your CD-RW drive—and it's free. Still, it may take you a while to figure out how to use MusicMatch's many features. Here's a ripping hint that can save you time. Insert a CD and click the Record button as usual. If you just want to rip a particular song or two, don't spend time unchecking all of the tracks you don't want. Simply click None, then click the tracks you do want.

Outlook 2000

✓Outlook 2000, by default, marks overdue tasks in red and completed tasks in gray. You can, however, customize the colors by selecting Options from the Tools menu (if you don't initially see Options under the Tools menu, click the two down arrows at the bottom of the menu). From the Options menu, click the Task Options button under the Preferences tab. In the Task Options window, click the down arrow next to Completed Tasks to change the color used for completed tasks. Do the same for overdue tasks and click OK until you return to Outlook.

Windows Media Player 7

✓A playlist is a custom made collection of digital music files. If you're new to Windows Media Player 7 and have existing playlists in either .M3U or .PLS formats, Windows Media Player will let you import your playlists. To import an existing playlist, click File and select Import Playlist To Library. Click the playlist from the Open dialog box and click Open. Windows Media Player will create a new playlist in the Media Library section. Click the new playlist and click the Play button. ▮

Reader Tips

WinMe

✓In Windows Me (Millenium Edition), if you use the Quick Launch toolbar to access your programs from your Desktop to avoid minimizing the program you are working with, stop. Instead, right-click the Taskbar, click Toolbars, and remove the check mark from Quick Launch. Right-click the Taskbar again and check Desktop.

By clicking the double arrows, you now have access to all the programs on your Desktop, including My Documents, My Computer, and anything else you might want to use.

Floyd J. Carrier
Baton Rouge, LA

Scrollbar Width

✓If your mouse lacks a scrolling wheel, you may want to adjust the width for the Scrollbars on each page you call up. This will make the bar easier to access. Right-click your Desktop, click Properties, click the Appearance tab and in the Item field, scroll down to Scrollbar and click it to highlight it. Using the Up or Down arrows, increase the default number to 18 or 20, at least. Click Apply. Your Scrollbar will be slightly wider and easier to see and access, so scroll on.

Don Otis
Hemet, CA

Do-It-Yourself DSL

Tips & Pointers On Installing Your Own High-Speed Internet Connection

Illustration: Erin Smith

So you've decided to take the plunge and sign up for DSL (Digital Subscriber Line) Internet service. The high download speeds associated with the service are nice, and its always-on connectivity is convenient, but DSL has its share of drawbacks. The most prohibitive aspects of DSL up to this point have been cost, availability, and installation times. It can take anywhere from a few weeks to several months to get your service up and running. And depending on the level of competition in your area, purchasing the equipment necessary to get the DSL connection running can cost upwards of $500.

There's not much you can do to increase DSL's availability because it's a function of your distance from the phone company and the condition of the phone lines in your area. The good news is that opting for a do-it-yourself DSL kit can mitigate the other two problems.

Unless your ISP (Internet service provider) is running a special promotion, installing DSL yourself is usually cheaper and faster than letting the ISP handle it. Be aware, though, that if you opt for a self-install contract and run into snags, calling the technicians in to fix the trouble may cost more than if the ISP had installed the service in the first place.

The tips in this article assume that you've already prequalified your telephone line for DSL service and that your provider is sending a DSL signal through them. If you see a DSL self-install kit on store shelves, don't buy it until you've contacted the company to make sure you can actually get the service.

None of the kits we looked at work on telephone lines with rotary dial service (a.k.a. pulse dial) installed instead of touch-tone service. They also are incompatible with lines using Centrex, PBX, or Hunting services. Also, DSL won't work if your home's telephone line has any special medical monitors or similar equipment installed.

What's In the Kit?

The variety of DSL-related hardware you must pay for varies from contract to contract but most often includes a DSL modem, five or six telephone filters, various cables, and instructions. DSL modems are not modems in the true sense of the word (modems convert analog phone signals to digital data your PC understands and vice versa; DSL signals are already digital), but since that's what most DSL providers call them we'll use the term throughout this article (a few companies refer to them as routers or bridges). ISPs usually provide a modem as part of the contract, but sometimes they give customers a choice between internal and external modems or ask that you buy one on your own.

Given the choice, we recommend using an external unit, especially if it comes with advanced connection features. The simplest DSL modems have an input jack for the telephone line and an Ethernet (Ethernet is a networking standard used in most home and office networks) network output jack to connect the modem to a

PC. Residential gateways are more elaborate, combining the modem's functionality with multiple Ethernet jacks and perhaps some security hardware. They are essentially integrated network switches or hubs and make the best DSL modems. It is possible to connect separate PCs to the Ethernet ports to share the DSL connection, a procedure we'll discuss in detail later. Few companies provide residential gateways as their standard modems, but they are available separately and can sit between your existing modem and the computer if you need their advanced features.

External DSL modems interface with your PC either through a USB (Universal Serial Bus) connection or an Ethernet NIC (network interface card). USB offers the easiest installation, typically involving nothing more than plugging a cable into a USB port and installing some simple software. NIC installations require opening the PC's case and installing the card on the computer's motherboard, which isn't as complicated as it sounds.

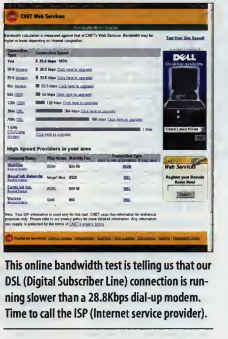
Internal modems come in the form of PCI (Peripheral Component Interconnect) or ISA (Industry Standard Architecture) expansion cards that you insert into appropriate slots on your computer's motherboard. They provide the same speeds as external modems, but because they make it more difficult to share a connection, they aren't quite as flexible.

Before buying anything, take another look at the terms of your contract. Few ISP's will offer any support at all if you use hardware or software that doesn't come specifically from them. That limitation can even extend to software upgrades, so be sure to ask before installing a patch. Also, few ISPs will have anything to do with you if you install a new OS (operating system), especially Windows 2000, unless the contract specifies that they support it.

DSL Service Basics

If you have trouble while installing DSL hardware and software, it can help to know how the DSL food chain works. The most important fact to keep in mind is that the ISP you've signed a contract with isn't necessarily providing the actual DSL service. Most ISPs are value-added resellers who contract the service from one of the major DSL service providers and add their own software, technical support, fee schedules, and other services. In addition to the DSL providers, the local telephone company gets involved because the DSL signals travel over its telephone wires.

With all these different companies in the mix, things can get out of hand in a hurry. The most important thing to remember is to never trust the middleman. The telephone company has a responsibility to fix any equipment its people may break while working at your house because you are a customer and it's the company's own hardware. The ISP you signed up with also has an



This online bandwidth test is telling us that our DSL (Digital Subscriber Line) connection is running slower than a 28.8Kbps dial-up modem. Time to call the ISP (Internet service provider).

obligation to live up to the terms of its service contract.

Unfortunately, major DSL providers often work on behalf of phone companies and resellers, and that's where you can get into trouble. If the provider installs a DSL line and it breaks shortly afterward, it may not be willing to fix the problem. Its customers are the phone company and the ISP—not you—and you will have to go through the ISP or telephone company to get the problem fixed. Never let installation or repair technicians leave unless you're satisfied with the work they've done, and you should probably prepare for extreme levels of stonewalling if they do mess things up. The technicians may tell you to take the matter up with either the phone company or the DSL reseller. Fortunately, self-install DSL kits help circumvent these problems because they cut down on the amount of required wiring.

Preparing The Phone Lines

Not long ago, DSL meant a visit from the phone company for some wiring work. The do-it-yourself kits sidestep this problem by providing five or six telephone line filters that block the digital DSL signal so it doesn't interfere with a standard analog line. Relish this part of the installation procedure because it by far is the easiest. Just go to each active device sharing the same line as the DSL connection and plug the filter into the wall jack. Then plug your telephone, answering machine, fax machine, or analog dial-up modem into the other end of the filter. Since the filters block the DSL signal instead of separating it from other signals, do not install a filter on the line going to your DSL modem. Also note that every filter we've seen is reversible, so you shouldn't worry about putting it on backwards.

Sometimes the only option is to let the phone company come in and install a new jack or line splitter or move an existing jack to a more convenient location. Don't confuse these services with line conditioning, which typically adds $200 to an installation bill. If the phone lines in your neighborhood are old, bad, or use exotic equipment, the phone company may have to come out and reconfigure, or "condition," them to handle the demands of DSL, but this has nothing to do with home owners. If you purchase DSL service directly from the phone company, it performs line conditioning gratis, but that's rare and

will be specified in the contract or offered by a salesperson when you sign up. Also note that if you install a line splitter, you will not need to install filters on the telephone line.

If your installation requires inside wiring or wiring repairs, it's wise to call your ISP before calling the phone company in. Frequently the ISP will pick up the bill and make all the arrangements to try to keep you happy. If you fail to discuss the wiring with the ISP before the phone company technicians show up, you may get stuck with a hefty bill that you'll have to pay out of pocket. Inside wiring is not cheap.

ZoneAlarm is one of the best software firewalls available, and it's free.

Installing Your Modem

Once your phone lines are ready, it's time to install your DSL modem. If the kit came with a NIC (or uses a PCI card modem) you'll want to install that first, using the instructions that came with the kit. If they are unclear, use the following procedure, but be aware that some kits require you to install the software before you attach the modem. Check your documentation to be sure. Because of the wide variety of hardware and the fact that competing ISPs ship different software packages (or even different versions of the same program), there's no way we can cover the specifics of your installation. There are several basic steps you'll likely encounter, however, and that's where we can help.

Turn off your PC, remove the case cover, and touch a metal part of the chassis to dissipate any static electricity you may have built up (don't detach the computer's power cable before doing this or it won't be grounded). Grab the modem card and find an empty PCI or ISA slot on the motherboard that you can insert it in (consult your documentation to see what type of product it is). If your PC's motherboard doesn't have an open slot, you'll have to contact the ISP for an alternative solution.

You may need to remove a metal port cover to make the slot accessible. Line the card up with the empty slot and press it firmly into place, using direct pressure on the top edge of the card and rocking it as little as possible. Always press straight down, as putting sideways pressure on the card can damage the motherboard. When the card pops into place, secure it to the case with the screw from the port cover and turn on the PC.

Windows will detect the new device and begin the software installation procedure, which varies depending on the hardware you're installing. Keep your Windows CD handy at all times during the installation process because Windows will likely ask you to insert it at various times so it can install drivers. When the software finishes installing, attach your modem to the NIC and connect the phone line to the modem's input port. At this point you should be able to turn the modem on and receive a DSL signal. Internal modems don't have power switches; they come on when you turn your PC on.

Sharing Connections

Getting your DSL (Digital Subscriber Line) connection to work on one computer is easy enough, but sharing the connection takes a little more work. It also takes some extra hardware, although the demand for such components is high enough at this point that they are relatively inexpensive.

The first thing to do is check to see if your contract specifically states whether you can or can't share the connection. More ISPs (Internet service providers) than ever are letting customers divide a single broadband connection between multiple computers as long as they are in the same household or business. Some, however, disallow this practice or require that users pay a separate monthly fee for each computer attached to the network.

It's possible to use a proxy server to fool the ISP, but we don't recommend doing so; if you get caught, the repercussions can be severe. Proxy servers let all the computers on your network operate under one virtual IP (Internet Protocol) address, hiding their true identity from the rest of the Web. As far as outsiders are concerned, it looks like you only have one computer accessing the Internet.

You'll also need some extra equipment to build the network. Ethernet networks are the easiest and cheapest to set up, requiring a NIC (network interface card) for each PC, a hub or switch that all the computers will connect to and communicate through, and cabling to attach everything. Many Ethernet kits are available that contain everything necessary to network two or three PCs.

There are other options like wireless networking kits that transmit data over the air and phone line kits that let you use your existing telephone lines to network PCs located all over the house. These two options are terrific for those with several PCs located in different rooms but are far more expensive than basic Ethernet networks (and potentially less reliable). Visit (http://www.smartcomputing.com) for a wealth of information about various types of network technology and how to set them up yourself. ■

If you have a USB modem without an external power supply and it fails to power up or only stays on for a short time, it may be trying to draw too much electricity from the USB port. Try connecting it to a powered USB hub (a device with multiple USB ports) or call your ISP to switch to an Ethernet NIC interface.

Software Configuration

The instructions that came with your kit will tell you how to configure any software the ISP bundled with it so you can get your PC to recognize the connection. Doing so will require several trips to Network Neighborhood in Windows 9x or My Network Places in Windows Me, and you'll probably see lots of Control Panel's Network properties features as well (click the Start button, then Settings, then Control Panel and double-click Network).

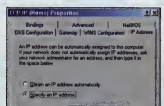
The Network properties dialog box has a few settings that you'll probably have to edit. One is your IP (Internet Protocol) address, which tells the Internet how to find your computer. For example, Smart Computing's Web site has an IP address of 12.39.144.5. Type that number into your Web browser's address bar, and the home page of our site will appear. URLs such as http://www.smartcomputing.com are just easily remembered shortcuts that lead to lengthy numeric addresses.

Depending on the type of service you have, your IP address will be either unchanging (static), or a new one will be assigned each time you begin an Internet session (dynamic). When signing up for DSL service, find out if your ISP uses PPPoE (Point-to-Point Protocol Over Ethernet), which assigns IP addresses dynamically, or PPPoA (Point-to-Point Protocol Over ATM), which gives you a static address. With PPPoA you'll need to configure your Internet connection so that it always uses the same IP address (provided by your ISP).

To do so, head to the Network properties dialog box in Control Panel as discussed above and click the Configuration tab. Find your hardware in the The Following Network Components Are Installed: list of devices and double-click its name. This brings up the properties for the device. Click the Specify An IP Address radio button if it isn't highlighted already and enter the appropriate information in the boxes. If your service uses PPPoE, you'll have to follow the same steps but click the Obtain IP Address Automatically radio button instead.

Testing Speed

Just because the DSL company said it would provide a guaranteed connection speed doesn't necessarily mean it's holding up its end of the bargain. Occasionally problems on the provider's end limits your connection to a lower speed than you are paying for, and it's your responsibility to test for this and report it. When your service is up and running, check out a site like DSLreports.com (http://www.dslreports.com/stest/0), which tests its real-world speed and graphs the results, comparing them to those of other DSL service providers nationwide.



Entering an IP (Internet Protocol) address is simple, but even the slightest mistake will deny you access to the Web.

Try at various times of the day, averaging the results to take network congestion into account. If the speeds the site reports are consistently lower than what you signed up for, notify your ISP immediately. Faulty or improperly configured hardware at its end is likely the culprit. Keep in mind that although you signed up for a certain type of service, such as 384Kbps (kilobits per second), your connection will rarely if ever achieve that top speed. Depending on your distance from the phone company and other factors, the maximum speed you see could be well below the theoretical maximum, especially during peak Internet usage periods when everyone is accessing sites at the same time.

Play It Safe

Getting your DSL service installed and running properly is only half of the battle. The final step is putting a shield between your computer and the outside world. DSL connections are always on unless you turn your computer off, giving potential intruders an open window into your PC. The problem can be worse for those with static IP numbers (once intruders have them they can continue to attack your PC), but even customers with dynamic IP addresses are at risk. The solution is a firewall, a program or piece of hardware designed to keep intruders out of your PC while still giving you access to the Internet. The best firewalls also prevent maverick programs on your PC from accessing the Internet, providing both internal and external security.

Hardware firewalls generally offer the best protection, but software products are far cheaper (in some cases they're free) and much easier to configure. In fact, one of the best firewalls we've tested is Zone Labs' ZoneAlarm, which you can download wihthout paying a cent at http://www.zonelabs.com. The free version offers excellent protection and provides alerts each time someone probes your computer for weaknesses. The company also offers a $40 version, ZoneAlarm Pro, which it designed specifically for users with networks. Another good software firewall is Symantec's Norton Personal Firewall 2001 (http://www.symantec.com/product/home-is.html), although Symantec doesn't offer a free version.

Regardless of which firewall you choose, make sure you get one installed as soon as possible to keep your new investment working for you instead of against you. ■■

by Tracy Baker

Puppet Master

EIDE Controllers Pull Your Drives' Strings

IT'S ALL A MATTER OF CONTROL. You probably wouldn't be reading this magazine if you didn't want to feel more in control of your PC. To that end, we're about to clear up any confusion you may have regarding your hard drive's controller, or the circuitry that acts as its liaison to the CPU.

Chances are the hard drive interface (electronic pathway) your PC's controller uses is EIDE (Enhanced Integrated Drive Electronics) rather than SCSI (Small Computer System Interface). EIDE evolved from the earlier IDE, and people use both terms today.

As hard drives have become much faster at reading and writing data, manufacturers such as Quantum have been inventing faster interfaces to handle the traffic. Earlier technologies include PIO (Programmed Input/Output) and DMA (Direct Memory Access), which had numbered modes depending upon how many megabytes per second each could carry. Today, EIDE interfaces have many names including UltraDMA, ATA (Advanced Technology Attachment), and UltraATA. All are interchangeable and backward compatible with older EIDE, PIO, and DMA drives. Finally, the subset ATAPI (ATA Packet Interface) lets CD, DVD, and removable cartridge drives such as Zip drives connect to the EIDE controller.

Illustration: Jason Cook

Don't worry about absorbing this flurry of acronyms. All you really need to know is the number of MBps (megabytes per second) involved. For example, an UltraDMA/66 controller can theoretically carry a maximum of 66MBps from an UltraDMA/66 drive. To keep things simple, we'll use the more common ATA designations, as in ATA/100.

Most EIDE motherboards come with a built-in controller, with two channels (divisions with individual connectors) labeled primary and secondary. If your motherboard was made before late 1999, its controller probably doesn't support ATA/66 or ATA/100. However, you can buy an ATA/66 or ATA/100 controller card that fits into one of your computer's PCI (Peripheral Component Interconnect) or ISA (Industry Standard Architecture) slots.

EIDE sockets have either 39 or 40 pins in two rows. One connector on your EIDE ribbon cable plugs into these pins, while its other connector or two are for your hard drive, CD-RW (CD-rewriteable) drive, or other EIDE or ATAPI device. A bump on each of the cable's connectors helps you plug it in the right way, but make sure that the cable's colored stripe faces each socket's No.1 pin (if it's labeled).

Each channel can handle two devices, a master and a slave. The master device controls the slave, and in the case of multiple hard drives, contains your PC's startup files and OS (operating system). You can configure a device as a master or slave using its jumper switches (often on the drive's rear). Therefore, two EIDE channels on a typical motherboard or card let you connect up to four devices. Modern EIDE controller cards automatically sense your hard drive's interface speed, such as ATA/33 or PIO 4 (16.6MBps) in a slightly older drive.

One more thing: ATA/66 or ATA/100 drives and controllers require a special ribbon cable with extra ground wires for top speeds. It has 40 pins like a regular EIDE cable, but 80 wires instead of 40. ATA/66/100 drives can use 40-wire EIDE cables, but only up to ATA/33 speeds (33MBps).

Troubleshooting

Since your system probably boots (starts up using system files) from your hard drive, a failing controller might keep it from loading Windows. It's rare for a solid-state controller to break relative to a hard drive or optical drive, which have moving parts. Still, controllers

can fail due to power surges or physical problems, such as broken or bent connector pins.

The diskette drive goes through its own controller, so check to see if your system boots to DOS from your Windows startup diskette (assuming you have one). If so, press CTRL-ALT-DELETE to restart, then F1, ESC, or whatever button the computer tells you to enter your BIOS (Basic Input /Output System) setup program. Here, you can make sure your computer detects your EIDE devices. Next, open your computer's case and make sure your EIDE and ATAPI drives' power and ribbon cables are securely in place.

From the diskette drive, you may be able to try a few tests to rule out other possible points of failure. Boot from your antivirus program's rescue diskette (assuming you made one) and scan your hard drive for viruses. Now is the time to hope you updated your antivirus software recently.

Next, reboot using your Windows startup diskette. Type scandisk c (or the letter of your hard drive) at the DOS prompt and press ENTER. If ScanDisk runs successfully, that should rule out a bad controller, cable, or hard drive. A setting or software problem is likely to blame.

Sometimes hardware conflicts make a controller look bad. For example, if your hard drive and CD-ROM drive share a channel, try moving the CD-ROM to the other one. Ribbon cables can also get pinched or kinked in the computer's case and cause problems.

Craig Lyons, Channel Marketing Manager of Promise Technology, offered some tips on troubleshooting controller hardware. Lyons recommended a process of elimination using components you know to be good.

"Let's say that your hard disk is not being recognized," Lyons said. "Assuming the system BIOS is set up correctly, the cause of the problem is most likely one of three things: either the disk itself, the IDE cable, or the hard disk controller."

Lyons suggests swapping the cable first with a good one (about $10 new).

Here's a Promise Ultra100 ATA/100 controller card connected to a new 20.4GB Fujitsu hard drive. The Promise card ($37 to $45) installs easily in a free PCI slot.

That's the cheapest and easiest fix. If the problem persists, swap the hard drive to the other channel. If it still doesn't work, switch the drive with a known good one (as low as $85). Finally, add a working controller card (new ones cost $20 to $45) if things don't improve.

"Someone may not have extra parts laying around to do this, but other than using expensive diagnostic equipment, there is really no other way to tell which part is causing the problem," Lyons said. Always double-check a suspect drive, cable, or controller card in a working PC before you toss it out.

How To Choose

If your computer has a free PCI slot, and it meets a few system requirements, you can buy an ATA/66 or ATA/100 card. Avoid old ISA cards if possible; these max out at 8.3 or 16.6MBps. Likewise, skip an ATA/33 card. It will slow current hard drives down, although it will work.

Today, very few EIDE hard drives can read a sustained stream of data at 40MBps. This begs the question: Why buy an ATA/66 or ATA/100 controller card if your hard drive can't read that quickly?

The answer lies in the drive's cache, or buffer. Typically 512KB to 2MB, but up to 16MB in AV (audiovisual)-enhanced hard drives, the cache is solid-state memory that remembers recently requested data. If the computer asks the hard drive for data that's still cached, the drive can send it without the delay of another disk access. Cache transfers theoretically occur at the interface's speed (such as 66MBps for ATA/66), but in reality lose some speed to administrative tasks. This is why a hard drive with a

40MBps maximum read rate may have occasional, momentary bursts of 60MBps or more through ATA/66.

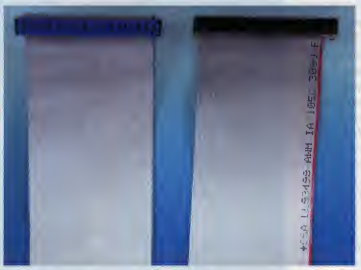
Current hard drives perform significantly better through ATA/66 than ATA/33. However, while an ATA/100 controller card won't boost current hard drives' speeds much past ATA/66 levels, there's really no reason to choose ATA/66 anymore. A $40 ATA/100 card doesn't cost much more than an ATA/66 card. Both use the same 80-wire, 40-pin ribbon cable, which you would need anyway. And it won't be long before the latest drives perform better on ATA/100 than ATA/66.

Other configurations. A new controller card may have other benefits. For example, some cards such as Promise Technology's Ultra100 ($37 to $45) can coexist with other controllers. By using the Ultra100 in addition to your motherboard's controller, you could have up to eight EIDE or ATAPI devices, assuming your power supply has enough wattage to run them all. Lyons recommends at least a 250-watt power supply for a PC with four hard drives and the usual other devices.

Even if your old controller works fine and you don't have more than four EIDE or ATAPI devices, you might gain some occasional speed by setting each device as a master on a separate channel.

"The way (E)IDE works is that if there is a master/slave configuration, only one device can be accessed at a time," Lyons said. "With each device on its own channel, each device could be accessed at the same time, speeding up data transfers." If, for instance, you put your CD-ROM drive, hard drive, and CD-RW drive as masters on separate channels, you should in theory be able to make faster CD-ROM to CD-RW copies.

RAID. If you're serious about having multiple hard drives, you might consider spending around $120 on a RAID (redundant array of independent disks) controller card. Among other things, a RAID lets several drives split data for faster reads and writes (called striping; RAID 0), write identical versions of the same data as a backup (mirroring; RAID 1), or both (RAID 0+1).



To get the best speeds out of your ATA/66 or ATA/100 controller and hard drive, you'll need the right cable. Notice that the ATA/66/100 cable (left) has finer wires (and twice as many) as the ATA/33 cable on the (right).

If you want an ATA/100 RAID for your server, video-editing station, or gaming rig, Lyons recommends one with hot swap and hot spare capabilities. Hot swap lets you unplug or connect a drive without shutting off the computer first, while hot spare lets an unused "standby" hard drive automatically join the RAID if another drive fails.

Installation

Promise Technology graciously loaned us an Ultra100 PCI controller card, which affords you an inexpensive way to upgrade your computer to UltraATA/100. We installed it in about 30 minutes in a Windows 98 IBM PC. We've listed our step-by-step instructions below. Your installation procedures will depend upon your OS, so read the card's instructions carefully. We'll assume you're simply replacing the controller you have, using the same hard drive and OS.

Try to have a working computer with Internet access nearby in case you need to access online troubleshooting information or new drivers (see the Driver Updating section below for details). For example, Linux and other OSes will require different driver files. Save any drivers to diskette, making sure to extract them first if they come in ZIP, RAR, or other compressed file formats.

Also, before you begin, make sure you have the documentation for your new controller card, hard drive, and motherboard. If you don't have them, find them on the manufacturers' Web sites and print them off. Note that your computer's manufacturer may not have made your motherboard, so look for its model number on its original manufacturer's site (you might need instructions for disabling your motherboard's old integrated controller in the BIOS).

Step one. Shut off your computer and open its case. Touch a grounded piece of metal such as the computer's case frequently while you work to discharge static electricity, or wear a grounding wrist strap from an electronics store.

Step two. Locate the old EIDE controller card or, if it's integrated, the connectors on the motherboard. Write down the devices that connect to the primary and secondary channels, so you can connect them to the new controller card the same way. However, it's best to put the hard drive that your system boots up to (containing your OS) as the master device on the primary channel, if it's not already. Carefully disconnect the ribbon cables from the controller sockets.

Step three. Find the LED (light-emitting diode) that lights when your hard drive's at work. It's likely peering

out from the front of your computer, and labeled with "HDD" or a cylinder symbol. If the LED's wires connect to the motherboard with a small, flat, four-pin connector, record the color of the wire that goes to pin No.1. Carefully pull the connector off its pins. If the wires merge with several others in a large connector, skip this step.

Step four. Remove the screw holding the old controller card's metal bracket to the computer case. Set it aside, then slide or rock the card out of its slot (end to end, *not* side to side). If you're replacing an integrated controller, choose a free cream-colored PCI slot where the new controller card won't crowd other components (especially the video card). Unscrew the slot's metal block plate and keep the screw handy.

Step five. Carefully press the new controller card into the PCI slot, making sure that the bottom tip of its metal bracket fits properly. Secure the bracket with the screw you took from the previous card or block plate.

Step six. Connect the primary and secondary ribbon cables to the card (it may be easier to remove the controller card, connect the cables and LED, then reinsert it). Remember, you'll need an 80-wire cable to get the full benefits of an ATA/66/100 drive and controller. In case its connectors' bumps don't offer any guidance, the cable's colored stripe should face pin No.1. Our Promise card included an ATA/66/100 ribbon cable with one blue connector for connecting to the card. Other manufacturers may recommend other arrangements, such as attaching a single drive to a particular connector out of the two left on a three-connector cable. Finally, attach the LED's connector to the controller card with the correct wire facing pin No.1.

Step seven. Start your PC. Be prepared; it may beep more than once and show you error messages. The Promise card's BIOS detected our hard drive, though. Our IBM 300PL told us our configuration had changed, and brought up the Setup program so we could adjust the BIOS settings if we so desired. The IBM's BIOS said our hard drive was not installed, but when we saved its new settings and exited Setup, the PC rebooted normally. Yours may put you through similar steps.

Step eight. Once Win98 launches, the Add New Hardware Wizard will pop up announcing the presence of a PCI Mass Storage Controller. Click Next twice, insert the controller card's driver diskette into the floppy drive, check the box next to Specify A Location, then click Browse. Double-click the icon for your floppy drive. In our Promise diskette's directory, we selected the WIN95-98 folder and then clicked OK. Click Next twice, and Win98 will install the new driver. Click Finish, then eject the diskette. Finally, click Yes to restart your computer.

Driver updating. If you encounter any problems, check the controller's documentation. For example, our system gave us a blue screen error each time we tried to boot to Windows, reading, "The volume that was removed had open files on it. Next time please check first to see that the volume can really be removed."

Luckily, we had a second PC with Internet access handy, and Promise had a 119KB download to fix this issue. At http://www.promise.com, click Tech Support, Compatibility Issues, and the new driver's link. Save the file to the working PC's hard drive, then click OK. Next, find the file (Ultra100b35.zip in our case) with Windows Explorer. We used WinZip to extract ours to a floppy. If your driver isn't zipped, right-click it and select Copy, then insert a blank diskette, right-click your floppy drive's icon, and click Paste.

Now, back to the problem PC. Restart, pressing F8 occasionally until you reach the startup menu. Press *3* and ENTER to boot in Safe Mode. Insert the driver diskette you made, click the Start button, Settings, Control Panel, and double-click System. Select the Device Manager tab, click the plus sign (+) next to SCSI Controllers (Win98 lists EIDE controllers here as well), Promise Ultra100, and Properties. Next, click the Driver tab and Update Driver. Click Next twice, then Browse. Click the plus signs next to 3½ Floppy (A:) and Ultra100b35, then select the WIN9X-ME folder and OK. Click Next twice and Finish. Eject the diskette and click Yes to restart. Problem solved.

Tips For Taking Control

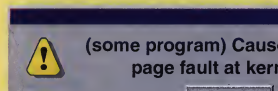
1. Today's drives only need ATA/66, but an ATA/100 card is a smarter investment.
2. Troubleshooting a suspect controller is simply a process of elimination.
3. Don't forget, without an 80-wire cable, your ATA/66 or ATA/100 hard drive and controller card will slow down to ATA/33.
4. If you decide on a RAID, make sure your computer's power supply has enough wattage to power all the drives.

Serial ATA

As new as ATA/100 is, its replacement is already on its way. The new 150MBps or more Serial ATA interface, backed by Maxtor, Seagate, Intel, and others, could debut later this year. Serial ATA devices use skinnier cables than EIDE's that are easier to manipulate in the confines of computer cases and don't block airflow as much. The Serial ATA Working Group says it should facilitate faster future interfaces and easier setup than EIDE. Best of all, the Group predicts adapters will let Serial ATA controllers connect to the millions of legacy EIDE hard drives in the world. ■

by Marty Sems

Examining Errors



JUST LIKE MOTORCYCLE OWNERS, computer users can be divided into two categories: those who have experienced crashes and those who will. Sooner or later everyone goes through this PC rite of passage. You'll see a message in a gray termination box warning that an error has already occurred. You may have to tinker a bit to revive a wounded application or a dead device. That's where we come in. Every month, we'll show you exactly how to troubleshoot error messages.

The Problem: Your browser crashes.
Error Message: "Invalid Page Fault At Kernel32.dll."

You may get this error message when you're trying to open a Web page. Your browser may freeze while you're scrolling a page or perhaps it won't display a page. You may also see it when trying to close the program. Kernel32 .dll handles memory management. Just about every action in a Windows application like your browser involves this busy DLL (dynamic-link library).

Most Kernel32.dll errors are *not* caused by a corruption of the Kernel32 .dll module. Generally, something else, such as a missing or corrupt file, is causing the Kernel32 driver to overload. In most cases, a file your browser needs no longer exists because you deleted it; this usually happens when you don't shut down your PC properly.

How To Fix It

You need to find the missing or corrupted file and replace it or delete it. Look first at your browser.

Internet Explorer 4.x, 5.x.

1 Open IE, click Tools, then Internet Options. (In IE4, Internet Options is under View.) This defaults to the General tab. Under Temporary Internet Files, click the Delete File button, then click OK.

2 Click the Settings button and click the View Objects button. When the Download Program Files window appears, click View, then Details for a list of Program Files and their Statuses. Remember, you're not looking for the Kernel32.dll file but other damaged files that are causing Kernel32 to overload. Highlight and Delete any files that are marked damaged. In most cases, you'll be deleting damaged ActiveX items that have been creating havoc with the Kernel32 driver. When you're finished, close Explorer. In the Settings window, click OK.

3 Under History, click the Clear History button to dump corrupt files. When the Internet Options box appears asking Are You Sure You Want Windows To Delete A History Of Your Visited Web Sites, click Yes and OK.

4 Reboot your PC, reconnect to the Web, fire up your browser, and your problem should be fixed.

Netscape Navigator 4.7, 6.x

1 Open Navigator, click Edit and Preferences. Under Category, click Navigator; under History, click the Clear History button.

2 Click Advanced, highlight Cache, and click both the Clear Disk Cache and Clear Memory Cache buttons. Click OK when prompted with If You Want To Remove All The Files In Your Disk Cache. Close Navigator.

3 To see if there are any corrupt files or plug-ins that could be causing the Kernel32 error, open Windows Explorer. In the NAVIGATOR folder (C:\PROGRAM FILES\NETSCAPE \COMMUNICATOR\PROGRAM, look for the PLUGINS subdirectory and rename it something like PLUGINSOLD. Close Navigator. (In Netscape 6, the PLUGINS folder is typically located under C:\PROGRAM FILES\NETSCAPE\NETSCAPE6.)

4 Reboot your PC, connect to the Internet, and open Navigator. If Navigator is stable, the problem was with the old PLUGIN folder. As Navigator has created a new (and empty) PLUGIN folder, delete the old one and go to Netscape (http://www.netscape .com) and redownload your plug-ins.

Final Tips For Either Browser

If your browser doesn't crash when you open it, download Microsoft's DirectX 8.08a (http://www.microsoft .com/directx). Otherwise, ask a friend or colleague to download it for you.

If you've never installed a new driver (or patch) or if more than four months have elapsed since you have, update your drivers. In Win98/Me/2000, click the Start button, Programs, Accessories, System Tools, and open the System Informa-tion Utility. In the left pane, click the plus sign (+) for Components and click a hardware component, in this case Display. To the right, you'll see the name, date, and version number of each driver. Click the History radio button to find out when you last installed a driver. Now, browse to the manufacturer and check for updates. ■

by Michael Cahlin

Have questions about an error message you've seen? Send us your message (errormessages@smartcomputing.com) and we'll try to decipher it. Volume prohibits individual replies.

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Can You Trust Your PC To A Free Firewall?

'Tis Sweet To Hear The Watchdog's Honest Bark

REMEMBER WHAT YOUR PARENTS SAID? "There's no such thing as a free lunch." They were right. It's a dog-eat-dog world. Everybody seems to be out for a buck, and there's not much you can get free. And, as more than one wit has noted, anything you *can* get for free is probably worth every penny you paid for it.

But there are a few exceptions, and one of them happens to be a tool that every DSL (Digital Subscriber Line), T1/T3, and cable modem user will want. If you have an always-on connection to the Internet, the one tool you must have is a firewall.

A firewall sits between your PC (or network) and your Internet connection and watches for attempts at unauthorized access. All messages from the Internet must pass through the firewall, which looks at each message and tries to determine if it's legitimate; messages that don't meet security criteria are blocked. The result? A much safer Internet connection. It's not really hacker-proof, but definitely much more difficult to break into—almost certainly difficult enough to encourage a would-be hacker to move on to easier pickings.

Firewalls can be hardware devices, or they can be implemented in software residing on your PC. The former are more expensive and often more effective. Until recently, firewalls of either type were known for being expensive to buy, tricky to set up, confusing to configure, and difficult to maintain.

That's all changed. We'll show you how to install and use two excellent software-based firewalls. Both are easy to install and set up, both do a great job of protecting you, and both are free.

Before we look at two firewalls, a very sensible question deserves to be answered: If they're free, how do the companies that sell them make any money?

To no one's surprise, the companies are not acting out of altruistic concern for the community. The firewalls are free to individual users, but not to businesses. This, essentially, is clever marketing. The companies give software to individual users, hoping familiarity (and satisfaction) prompts them to recommend that their businesses buy the (usually somewhat more powerful) commercial versions of the software, at a price in the neighborhood of $30 to $40 per seat, at low volume. If a 400-person small business buys one of these packages at the $26-per-seat high-volume rate, that's a $10,000 sale. And, in the meantime, they really are performing a service for individual consumers.

Introducing . . . The Contenders

The two free firewalls are Tiny Software's Tiny Personal Firewall (http://www.tinysoftware.com) and Zone Labs' ZoneAlarm (http://www.zonealarm.com). Both are available as downloads from the companies' Web sites. We ran through each download and installation, step-by-step, so you could see how to install and configure our two freebie firewalls.

Illustration: Brad Jungeman

Tiny Personal Firewall. TSP (Tiny Software's offering), is the first one we checked. Here's the process we went through to install it.

1. Download the file. It's a 1.28MB download, which means it should take only a minute or two on a typical DSL connection. Windows will give you the typical Run This Program From Its Current Location and Save This Program To Disk options. Choose the radio button for the latter and save the file (called Pf2.exe) on your hard drive where you'll be able to find it again.

2. Once saved, you can exit your browser, locate, and run the file. (Click the Start button and Run, browse to the file, select it, and click OK.)

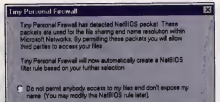
3. The installation is typical of all Windows application installs. You're asked to read and consent to the license agreement, you're given a choice as to where you'd like to install the program (we just accepted the default suggestion on this and all other such options), and then the installer itself runs. The install takes about 30 seconds or so.

4. Once the installation is complete, the installer will reboot your computer.

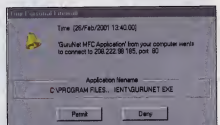
Configure and use TPF. When the PC reboots, TPF will be active and will scan for potential weaknesses and actual attacks. On our test machine, it immediately noticed a NetBIOS packet, which we had deliberately left active, used by Windows to allow file sharing.

As it finds possible security holes, TPF will ask if you wish to set up a filter, which disallows the access, allows access only from this source, or allows access by sources you specify. Similarly, TPF immediately discovered that our copy of a utility called GuruNet (now known as Atomica) was requesting permission to contact a Web server and again offered to create a set of filter "rules" to govern such access.

Configuring TPF is extremely simple. The configuration manager brings up a tabbed dialog box that lets you: Enable or disable the firewall. Then add or delete trustful address groups. Finally, set up filter rules. A filter rule lets the user describe the protocol (UDP, HTTP, etc) involved, the ports through which access should be allowed, the applications allowed, and when the rule will be valid (Always? Only during a specific day or time?)



Tiny Personal Firewall immediately detected that a Windows service that allows file and drive sharing was running and alerted us.



Our GuruNet utility wants to breach the firewall to communicate with its server.

For our tests, we left all default settings in place, which meant that the firewall was enabled, TPF was set to "medium" security, and the preset filter rules were running. The only downside to this configuration is that the firewall may throw dozens of alerts at you the first few times it runs, because, with your help, it has to decide what network (in this case, Internet) transactions to allow. The more applications you run that access the Internet, the more alerts you'll see until TPF has built filter rules to accommodate them all.

As far as configuring and using Tiny Personal Firewall, that's about it. In reality, you could install it in 30 seconds and then, except for answering the alerts, never touch it again. Firewalls don't come much simpler than that.

ZoneAlarm. We went through the same process with ZoneAlarm, ran the same tests, and ended up with pretty much the same results. Here's how to install ZoneAlarm.

1. Download the file. It's a 1.66MB download, which means it should take you only couple of minutes to download on a typical DSL connection. Windows will give you the typical Run This Program From Its Current Location and Save This Program To Disk options. Choose the latter, and save the file (called Zonealarm.exe) on your hard drive where you'll be able to find it again.

2. Once you have saved the file, you can exit your browser and locate and run the file. (Click the Start button and Run and then browse to the file, select it, and click OK.)

3. Read and consent to the license agreement, decide where you'd like to install the program (we accepted the default suggestion), and sit back and wait for the installer to run itself. The install takes about 30 seconds or so.

4. Once the installation is complete, the installer will reboot your computer.

Configure and use ZoneAlarm. As with TPF, ZoneAlarm is active as soon as you reboot your PC. Like TPF, it may pester you with spurious alerts the first few times it runs, until it has produced rules for any applications you run that attempt to connect to the Internet.

ZoneAlarm's user interface is a control panel; it's a bit friendlier and more graphic and includes more options than does TPF. However, that makes the interface a bit more intrusive, and some users have complained about that. It's really just a matter of preference. You can expand or close the panel. Closed, it takes up about 10% or so of the available screen space. Naturally, you can minimize it so that it takes up no screen space at all.

Open or closed, ZoneAlarm displays five configuration buttons, a Stop button that immediately halts Internet traffic, and a Lock icon that shows if Internet access is currently allowed.

Like TPF, ZoneAlarm installs easily, with default settings that seem to work well. Except for answering alerts, there's no additional configuration needed. If you want to modify the firewall's configuration, click one of the configuration buttons:

Alerts. Summarizes current alerts and lets users set the location of the logfile. It also contains a checkbox that determines whether a window pops up when an alert is triggered.

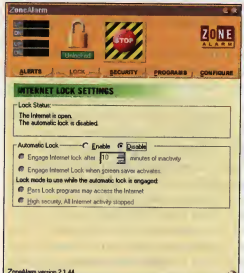
Lock. Lets the user set whether to allow Internet access. Access can be automatically disabled when the system is inactive for a predetermined time, and you can use the Pass Lock feature to allow access even when locked.

Security. Displays a set of Slider controls so users can set security to low, medium, or high for local and Internet servers. ZoneAlarm includes a MailSafe feature, which can quarantine e-mail attachments; that feature is also set here.

Programs. Lists programs that have requested, or are currently requesting, Internet access. Each program includes a checkbox you can click to allow or deny access.

Configure. Determines whether ZoneAlarm is loaded at Startup and whether its window is displayed during Internet activity.

You'll need to make few, if any, adjustments to ZoneAlarm once it's installed. You may wish to set the Local Security to Medium, which allows local access to shared devices and is necessary if you're on a network. If you're not on a network, we recommend setting it to High. You'll probably want to set Internet Security to High, which blocks Internet access to Windows services and to file shares; you almost certainly don't intend for people to enter your PC via the Internet and have access to files and shared devices on your network.



ZoneAlarm's Lock settings let you configure whether Internet access is locked out after a period of inactivity and whether certain programs are allowed access even during a lockout.

Access Permitted

Because some programs (your browser, for one) need Internet access, you may wish to let your firewall know that certain programs are allowed to access the Internet, except when you have it totally locked down. Don't forget that programs other than browsers sometimes require access to the Internet:

- Your word processor or any other application that recognizes hyperlinks.
- Many media players, including Windows Media Player and RealPlayer, sometimes check for updates and new content via the Internet.
- Utilities, such as WeatherBug and GuruNet, which acquire content or data updates from a Web server.
- Your antivirus software, if it's set to check automatically for updates. (A very good idea, by the way.)

So, how effective can a free firewall be? Although it's an important weapon to add to your defensive arsenal, no firewall offers complete protection from attack. However, with an always-on connection, and especially if you have a static IP (Internet Protocol) address, even a relatively simple firewall helps you by hiding open ports and scanning incoming and outgoing traffic.

The free, software-based firewalls we reviewed aren't as sophisticated as the dedicated (usually Unix-based) firewalls that protect Web servers and commercial-grade networks. They lack advanced features, such as true packet filtering and stateful packet inspection (in which filtering rules are chosen dynamically instead of decided upon according to a fixed configuration), and neither can act as a proxy server (a firewall that decides to accept or deny a transaction based on the complete set of packets associated with an entire application session to one IP address).

Still, the firewalls are much better than nothing. Chris Jackson, a consultant with Data Integrity, a network security company, ran scans against both firewalls and detected no obvious weaknesses in either firewall. Jackson says they probably won't stop a determined hacker, and the firewall's presence may give the user a false sense of security. "The danger is that consumers will think that they are truly safe, and forget about a lot of precautions they might have undertaken in the past," says Jackson, including the most important precaution: keep your antivirus software (and virus definitions) up-to-date.

Keeping your Internet-connected PC safe is similar to protecting your house. Police officers tell you that one of the best ways to protect your house is to get a dog. It doesn't need to be a 100-pound German shepherd; a 20-pound Yorkie that barks at strange noises will almost always create enough of a racket to make burglars look elsewhere. A firewall is similar to the barking dog: any firewall good enough to cause an Internet-based burglar some trouble will usually be enough to make him look for easier pickings. You could spend thousands of dollars on a German-shepherd firewall, but these free Yorkies will do the job for most of us. ■

by Rod Scher

Microsoft Office's Storage Alternative

Office Files In Network Places & Web Folders With A Microsoft Partner

DO YOU HAVE FILES ON YOUR COMPUTER that you haven't used in a while? You probably don't want to delete them, but you could find better uses for the hard drive space. There are many Web sites that let you store those files on their servers, and you can instantly retrieve the files when you need them. Better yet, you can store up to 100MB of data at no cost. You may also have family members, clients, or business associates who you'd like to send files to, let them make changes, and then send the files with changes back to you. You may also want to retrieve an Access database, make changes to the data, and even create a new database from a remote location.

If you've run into any of the above scenarios, you can use a feature called Web Folders In A Network Place, create Web Folders, and add files to it from any Microsoft Office environment. All you need is permission and a connection to the location of a Web Folder. The Web Folder can exist on a local intranet, on the Internet, or at a special third-party vendor that simplifies the use of Web Folders for these purposes.

You may be wondering what a Web Folder is and how can it help you; it's simply a virtual folder. This folder can exist at a Web site, on your LAN (local-area network), or in your computer. Web Folders reside in either Network Neighborhood for Windows 95/98/NT or Network Places for Windows Me/2000. In addition, you can access Web Folders with a third-party service from Xdrive (http://www.xdrive.com), a certified Microsoft Partner.

Web Folders are available from any recent Windows operating system, including Windows 95/98/Me/NT 4.0/2000. Web Folders provide a shortcut to a Web site. Creating a shortcut to a network server lets users add new files and make changes to existing files within the Web Folder. Using the Microsoft partner, Xdrive, Web Folders can be made available to individuals and organizations that do not have their own Web sites.

Xdrive offers free, limited storage space to new members starting at 25MB and running up to 100MB. Storing files at Xdrive lets you work online at any offsite location just as you would your regular computer. In other words, you can take your work with you when you're at home, at the airport, or at your client's office—anywhere you can get a connection to the Internet.

Web Folders let you store a variety of typical Office files, such as Word documents, Excel spreadsheets, Access databases, and snapshots of Access reports. In addition, you can store other popular files, including MP3s and graphic images. For example, we copied two kinds of files to our Xdrive folder: one was the Northwind Database that ships as part of Microsoft Access; and the other was a collage of pictures taken with a digital camera and saved in Microsoft PhotoDraw 2.

You can have more than one folder in your Xdrive Web site and authorize different people to have access to different files in the same folder. How those files are shared hinges on how you set up the e-mail message. The individuals can then copy, edit, save, and manage those files as if they owned them. If you add an Access database to your Web Folder, you can share this database file with others. The recipients can, in turn, open forms, print reports, and do all of the other functions that you normally perform with a database. If recipients decide to add tables, queries, or other objects to the database, then they can resave the database file in the Web Folder with the same name or give it a new name. In addition, they can save the file on their local computer. If changes are made and saved back to your folder, you will be able to see the changes. If the recipient saves the changes to his hard drive, you do not have access to those changes.

Access XP's Folder Access

Web Folders is a feature introduced in Access 2000. Access XP has added a

couple of features and now lets users go through the new Task Pane to get to the folders. The Task Pane also includes a link to add Web Folders. Earlier versions of Access did not offer such a simple way to create Web Folders. Although you can use Web Folders with your corporate or personal Web site, Xdrive simplifies how you share and secure files at your Xdrive Web site.

For users who are new to Access (and also for the not-so-new users who want to know about the new features), the Access XP's interface offers more flexibility and ease-of-use for getting to the data than earlier versions. If you are upgrading from an earlier version of Access you will see that Access was given a facelift. It is now more streamlined to have a flatter surface appearance.

The new Microsoft Access XP presents a cleaner, more streamlined interface that lets users more easily access their data.

You can access Web Folders in one of several ways depending on both the version of Access and Windows operating system you are using, as well as whether you are using Xdrive.

Access 2000 on Windows 98. To open Access 2000 on a system running Win98, click the Start button, Programs, and Microsoft Access. Double-click More Files to open the Open dialog. Next, click the Web Folders icon on the Option bar. You'll see any existing Web Folders, and you can highlight the one you're interested in working with. Notice the icon for a Web Folder is a folder with a world globe on it. You can use the Open dialog box to open files within these folders just as if they existed on your computer or office LAN. If you select Blank Database from the Microsoft Access dialog box and click OK, the File New Database dialog box opens. This dialog box will not include a Web Folders icon, but you can see an existing Web Folder by opening the Save In drop-down box and selecting Network Neighborhood. This groups together Web Folders with local computers and special shortcuts to folders. However, Web Folders always display with their distinctive world-globe icon. If you select a Web Folder, your new blank database stores in the Web Folder instead of on your local computer or another computer on your LAN.

Access XP on Windows 2000. To open Access XP on a system running Win2000, click the Start button, Programs, and Microsoft Access. Access XP opens without the Microsoft Access dialog box but with the menu bar and Database window toolbar. You may see the Task Pane if it is selected to show at startup. If the pane does not appear, click the New icon on the toolbar to show the Task Pane. Click More Files on the Task Pane to launch the Open dialog box. Open the Look In drop-down box and select My Network Places so you can see your existing Web Folders, along with any other network and local folders previously defined in Win2000. Clicking Blank Database on the Task Pane opens the File New Database dialog box. Opening the Save In drop-down box reveals My Network Places. Click My Network Places to see your existing Web Folders along with any other folders previously defined in Win2000. Select a Web Folder to save your new blank database file to a Web Folder.

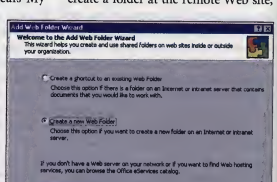
Access XP and Xdrive. There is one special trick for using Access XP with Xdrive. After clicking More Files on the Task Pane, do *not* choose Web Folders. Instead, choose the folder that resides below My Computer in the Look In box. Its name is a composite of your username with Xdrive and On www.xdrive.com(X:).

After working exhaustively with the different Microsoft operating systems and applications, it became apparent that Xdrive was competent to handle the most diverse of those environments efficiently and effectively.

Xdrive Gets You There

Any Office user can use Xdrive to set up Web Folders on the Internet. Xdrive also lets you set up an application on your Desktop so that you can drag and drop files into Web Folders to share. In addition, the Desktop application lets you work at another computer from a different location. Using Access XP, you can get to Xdrive through the Task Pane. If the Task pane doesn't show, click the New icon. Click the Add Web Folders hyperlink at the bottom of the Task Pane to get to the Add Web Folder Wizard dialogue window. The wizard offers three options:

Create A Shortcut To An Existing Web Folder. Select this option if you already have a folder and you'd like to add another shortcut link. The wizard prompts you to enter the URL (uniform resource locator) and then asks if you're sure you want to create a duplicate folder. Click Yes. After this, the new folder appears when you open Web Folders. You didn't actually create a folder at the remote Web site;



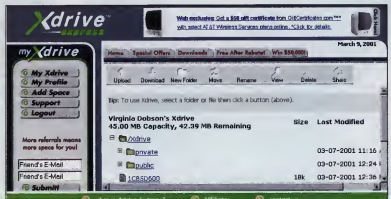
A new feature called Add Web Folder Wizard lets users create a shortcut, add a new Web Folder, or browse the Office Tools.

you added a shortcut link that points at a previously existing Web Folder on a remote computer.

Create A New Web Folder. Choose this option if this is your first time and you want to sign up with MSN to create an online folder or if you want to set up an MSN folder on your Desktop, letting you drag and drop files into a folder without opening a Web session. If you choose MSN to set up a Desktop application you'll need to sign up with Hotmail (http://www.hotmail.com).

Browse Office Tools On The Web Catalog. This option will let you set up Web Folders with Xdrive.

Once you've created your folders, they will reside on whatever resource you specify as the source for the Web Folder. For example, you can use the Xdrive site or your own Web site. If you belong to a group or network, you'll need permission from the system administrator to access shared folders. If Xdrive is your Web Folder resource, Xdrive offers a built-in capability for sending e-mail to a group of users with a hyperlink to the file. They can make changes and save them in the original folder, which changes the original file, or copy them to your folder, which preserves the original.



You can have numerous folders at your Web Folder site, and you can e-mail the links to the folders to family, friends, or co-workers so they can access the Web Folders, too.

Xdrive, A Microsoft Partner

Xdrive is referred to as an Internet hard drive. You can literally save all your files in a virtual Web Folder. If your PC crashes, you won't lose a single file that's stored on Xdrive's servers. You can work from remote computers or set up access for multiple computers that need to get at the same files. Your files are accessible through a URL from anywhere around the world, at anytime.

Xdrive lets you access folders two ways. You can set up folders at its Web site or download the application onto your Desktop to drag and drop files into your folder. For either, you'll need to register for an account. On Xdrive's home page, click Sign Up under the New To Xdrive link. After registering, you can download and install the Xdrive Express Desktop.

You'll receive an e-mail message from Xdrive's support team welcoming you to the site. Scroll down and click the hyperlink to Xdrive. Once it opens you can enter your username and password. Your site's name is the name you entered when signing up. For this article, we used VirginiaDobson's Xdrive. Once the screen opens, click the plus sign (+) to see Private and Public folders. You can now upload files as you desire.

There is a toolbar just above the folders in this section that lets you work with your folders. It's all graphical and pretty intuitive.

Upload. You can upload files from your computer by highlighting the folder you want to load files into and the click the Upload icon. Once the screen opens, you can load up to five files. As the files are copied, a progress meter gives you feedback. When the copying is complete, click Yes when prompted to shut the window.

Download. You can now download the files to your Desktop application or to a Web Folder by clicking the Download icon. First, highlight the file you plan to download. Then enter where you want to save the file.

New Folder. It's easy to create extra folders in your private or public folders; simply click the New Folders icon.

Move. You can move files out of a folder into another folder.

Rename. Lets you change the name of a file. You cannot change the name of a folder.

View. Lets you open a file and view its contents.

Delete. Delete a file from a folder. You cannot delete a folder.

Share. Click this icon to share your folder with your submitted e-mail guests.

It is very simple to set up an Xdrive application on your Desktop. It takes just a few minutes to download the necessary files. Xdrive uses 1.4MB of storage space on your hard drive, which is a small price to pay for the many services available (particularly, its offsite storage capability).

Your Private Stash

Using Web Folders through Microsoft Access XP makes your life a little easier. You can save and retrieve files from intranets and the Internet more easily than ever, and you can readily manage security and messages about the availability of your Web Folders through Xdrive. Because database users can work with their databases from the Web, they are not confined to working with them on a single computer or LAN. In addition, the ability of Xdrive to work with all the Office applications makes it possible to store files remotely and free up local hard drive space. ■

by Virginia Dobson

Congratulations!

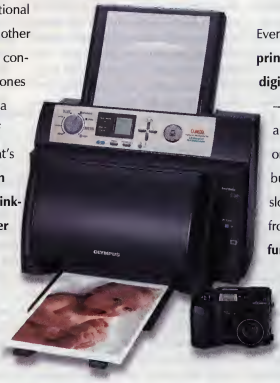
OLYMPUS®
Focus On Life

The Olympus P-400 Dye-Sublimation Photo Printer has arrived!

It's a 26-pound Digital Darkroom.

The Olympus P-400 uses **dye-sublimation technology** to produce **true continuous-tone images**, just like traditional photographs. Inkjet printers, on the other hand, can only create the *illusion* of continuous tones by using a matrix of dots. That's why **even the best inkjet printer is no match for the P-400** when it comes to image detail and color vibrancy.

Unlike typical inkjet printers, the P-400 delivers **fade-resistant images with archival qualities** comparable to traditional photographs. And while inkjet printers will test your patience, the P-400 **can output an 8" x 10" print[1] in about 90 seconds.[2]**



Olympus P-400 Dye-Sublimation Photo Printer

CAMEDIA
Digitally Inspired

You won't find a more **versatile**, more **convenient** printer than the Olympus P-400. Its **parallel and USB interfaces** let you print from your favorite PC or Mac photoediting application.

Even without a computer, you can **print images directly from your digital camera's removable media**—including SmartMedia,™ Type I and II CompactFlash,® and Memory Stick®—thanks to the P-400's built-in SmartMedia and PC Card slots. Print on the spot, choosing from **numerous built-in print functions**—such as sepia-tone or black-and-white conversion, crop and enlarge, borders and vignettes.

Finally, you should know the Olympus P-400 can be yours for **under $1,000[3]**—about one-fifth the cost of competitive dye-sublimation printers of comparable output size. You can learn more at **P400.olympus.com**.

Olympus America Inc. • 2 Corporate Center Drive • Melville, NY 11747-3157 • Call 888-55DIGITAL for more information. • ©2001 Olympus America Inc.

[1]Actual image area: 7.64 x 10 in. [2]Approximate time after acquisition of data to final output. [3]MSRP: $999. All trademarks and registered trademarks are the properties of their respective holders.

Compiled by Chad Denton

Urban Legends On The 'Net

Don't Spread That Hoax
http://www.nonprofit.net/hoax

You're not going to win money or prizes by forwarding e-mail to all your friends, the FCC isn't going to prohibit CBS from airing religiously themed programs, and the guy with his headlights off is not a gang member. If you've been on the Internet, you've probably heard these stories. Don't Spread That Hoax is devoted to debunking these and other myths. Browse through the online collection of myths to get the truth before cluttering up your friend's e-mail with well meaning, but nonetheless untrue warnings.

Internet ScamBusters
http://www.scambusters.org

Internet ScamBusters is an excellent resource to help you decide what's true and what's not. Whether you want information on urban legends and virus hoaxes or you want to see if a company is on the up and up, Internet ScamBusters is the place to start. The Scam Check Station provides information to help avoid credit card, telephone, and other popular scams. You'll also find information to help you avoid spam. One nice feature lets you subscribe to a monthly newsletter, outlining the latest urban legends and Internet scams.

The Urban Legend Combat Kit
http://www.netsquirrel.com/combatkit

OK, maybe you can spot an e-mail hoax from across the room (all those capital letters help), but your friends and family may not be so lucky. Of course, this means you'll have to delete countless warnings from well-intentioned friends and family. If you send a polite response pointing out the shortcomings of the messages, you'll have to take time to write out a response. The Urban Legend Combat Kit can help. You'll find polite, well-researched responses to popular Internet hoaxes that you can cut and paste into a response.

James Randi Educational Foundation
http://www.randi.org

The hoax didn't start with the Internet. People have fooled others (and occasionally themselves) since the beginning of time. This is the Web site for the James Randi Educational Foundation, which has a goal of promoting critical thinking and providing reliable information to the public and media. You'll find information on the Million Dollar Challenge, a reward for anyone who can withstand a scientific examination of his paranormal power. You'll also find information about Randi's lectures, books, and videos, as well as weekly commentary archived for your reference.

The Museum Of Hoaxes
http://www.museumofhoaxes.com

Ever wonder what some of the greatest hoaxes of all time are? Visit the Museum of Hoaxes. Hoaxes are sorted by year starting with pre-1700 hoaxes, but you can also browse hoaxes by category. Notable hoaxes include Constantine's Donation to the Vatican, predictions made by Jonathan Swift in an almanac he published, a couple of fictitious accounts written by Benjamin Franklin, and numerous reports of sea serpents, witches, and other monsters. You can also find information about the origin of the word "hoax."

Moon Hoax
http://www.redzero.demon.co.uk/moonhoax

Many people believe that Apollo 11 never landed on the moon. This site shoots holes in those theories. If you believe the moon landing was filmed at a Hollywood sound stage, you may want to skip this site because the author doesn't seem to hold anyone with differing opinions in high regard. Nonetheless, the site has a number of explanations for common questions raised by conspiracy enthusiasts. Find answers to questions, such as why is the flag fluttering? Why are the astronauts' shadows at different angles? And why doesn't the dust fall right?

Internet Detective
http://www.sosig.ac.uk/desire/internet detective.html

With all the information on the Internet, it's tough to tell what's good information and what's not. The Internet Detective provides an interactive tutorial for Internet users. You must register to take the online course. Registration is free and lets you resume the course from where you left off (which is a good thing because the course can take more than two hours). The course requires a forms- and cookie-capable browser with images enabled. If you think you're too gullible, this class just might be able to help.

Illustrations Dave Fuda

Quick Fixes

Most software can benefit from a few updates, patches, and add-ons downloaded from the Internet. This month, we focus on utilities for removable media.

IomegaWare 2.8

The latest IomegaWare version includes support for Windows Me and USB-powered Zip drives. The new software also supports the new PocketZip 40 and Clik! drives.
http://www.iomega.com/software/featured/iomegawarepc.html

FotoShow 1.05

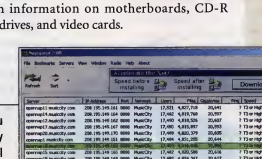
Iomega's FotoShow software lets you organize and copy digital images on your PC or Zip drive. The new release contains several fixes, including one that lets you copy from an 8MB SanDisk CompactFlash card.
http://www.iomega.com/software/completed/fotoshow.html

That's News To You

Finding the appropriate Usenet discussion group to match your interests can be a monumental task. Each month, we scour the tens of thousands of newsgroups and highlight the newsgroups that delve into popular topics. If your ISP (Internet service provider) doesn't carry these groups, ask it to add the groups to its list. This month, we focus on support forums for PC users.

alt.comp.hardware.homebuilt Many computer users enjoy building their own computer systems. This newsgroup can serve as an excellent resource, especially if you've never built a home computer. You'll find hardware recommendations, tips on installing specific hardware components, and troubleshooting suggestions.

alt.comp.periphs.* This hierarchy includes newsgroups devoted to specific components that make up a PC. You'll find newsgroups with information on motherboards, CD-R (CD-recordable) drives, and video cards.



Using Napigator, you can connect to any official or unofficial Napster network. Opennap servers let you choose an available server.

Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available for download. Each month we feature highlights from our pickings.

Napigator 2.00

http://www.napigator.com

Napster runs more than one Napster server, and it logs you onto its first available server. There are other Napster servers, known as Opennap servers. Opennap servers work like traditional Napster servers, but Napster will only connect you to official Napster servers unless you have Napigator. Napigator lets you choose among any of the available Napster servers or one of the Opennap servers. Once you install the software, a Napigator button appears in Napster. Click the button to bring up a list of available servers. You can view the server name, number of users, files, connection speed, and a public rating for all Opennap servers (stats for Napster servers are not available). You can use this information to login to the server by double-clicking the name of the server. Napigator runs on all current versions of Windows with Internet Explorer 4.0 or newer installed and is free to download and use.

Aimster

http://www.aimster.com

Aimster is peer-to-peer file sharing software that lets you share your files with other users on the AOL Instant Messenger or Gnutella networks. Unlike other file sharing software, Aimster lets you restrict access to your files to people on your buddy list. In addition, your buddies can share files with you; because the files are coming from trusted sources, you can be a little more certain that you're not downloading a virus or Trojan horse. Aimster doesn't restrict you to MP3 and music files; you can share images, programs, and other computer files you want to make available. You can share your files with users who are not on your buddy list (which also means you might be able to find goodies from people not on your list). You can also exchange instant messages with friends while you share files. Currently, Aimster is only compatible with AOL Instant Messenger, but plans are in place to provide Microsoft Messenger compatibility. You can also download and install custom skins that let you easily change the appearance of Aimster. Aimster runs on all current versions of Windows including WinMe/2000. ■

Compiled by Lori Robison
Graphics & Design by Andria Schultz & Carrie Benes

Catch The Right Bus

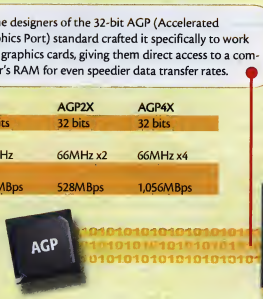
There are several buses in your computer, all designed to transport data to and from the components in your system. At its most basic level, a bus is nothing more than a collection of aluminum wires that transmit all the ones and zeros comprising a computer's data. Each bus has two main parts: a data bus, which transmits the actual data, and an address bus, which transmits information about where the data should go.

When discussing how fast data travels through a bus, we typically look at the number of wires that make up the data bus, as well as the bus controller's clock speed (bus controllers are specialized microchips that direct the flow of data traffic around your motherboard). A 16-bit bus, for example, contains 16 separate wires that each transmit a single bit of data (for a total of two bytes of information) during each clock cycle. So, if a bus controller's clock runs at 8MHz , or 8 million cycles per second, a 16-bit bus will be able to transmit data at speeds up to a maximum of 16MBps (megabytes per second).

Motherboards from different companies and with different form factors may contain different types of buses. However, the diagram below shows some of the bus standards you're likely to find inside most PCs.

The designers of the 32-bit AGP (Accelerated Graphics Port) standard crafted it specifically to work with graphics cards, giving them direct access to a computer's RAM for even speedier data transfer rates.

	AGP	AGP2X	AGP4X
Bus Width Controller	32 bits	32 bits	32 bits
Clock Speed	66MHz	66MHz x2	66MHz x4
Top Data Transfer Speed	264MBps	528MBps	1,056MBps



Many motherboards have a dedicated memory bus that forms a direct conduit from the memory to the motherboard chipset, where data goes to reach the system bus and move on to the CPU.

The system bus is the main data pathway that runs from your system's CPU to its memory. Most of today's systems have bus widths of 64 bits, but the bus' capacity is often measured by its clock speed, such as 66MHz, 100MHz, 133MHz, and the 400MHz buses found in Pentium 4 systems.

The Input/Output Bus connects a PC's internal storage devices, expansion slots, and peripheral ports to the CPU. In this diagram, the I/O (input /output) bus transfers data from these devices through a special hub (part of the motherboard chipset) before sending it on to the CPU and memory.

	Pentium II	Pentium III	Pentium 4
Bus Width Controller	64 bits	64 bits	64 bits
Clock Speed	66MHz	100MHz	400MHz
Top Data Transfer Speed	528MBps	800MBps	3,200MBps

Outdated Buses

The ISA (Industry Standard Architecture) 16-bit expansion bus was one of the first buses created for personal computers. Located on the motherboard, the ISA bus is connected to long, black expansion slots, which you can use to plug in expansion boards for older sound cards and modems. Since the creation of ISA in the early 1980s, PC architects have developed other busses as well, including EISA (Enhanced ISA), MCA (Micro-Channel Architecture), and VLB (VESA [Video Electronics Standards Association] Local Bus). The PCI bus and other newer standards have almost completely supplanted ISA, MCA, and VLB standards in new PCs.

Bus Name	Bus Width	Controller Clock Speed	Top Data Transfer Speed
ISA (Industry Standard Architecture)	8 bits/16 bits	8.3MHz	8.3/16.6MBps
EISA (Enhanced ISA)	32 bits	8.3MHz	33MBps
MCA (Micro-Channel Architecture)	32 bits	10MHz	40MBps
VLB (VESA Local Bus)	32 bits	33MHz	132MBps

USB (Universal Serial Bus)

Bus Width	Serial
Controller Clock Speed	48MHz
Top Data Transfer Speed	12MBps

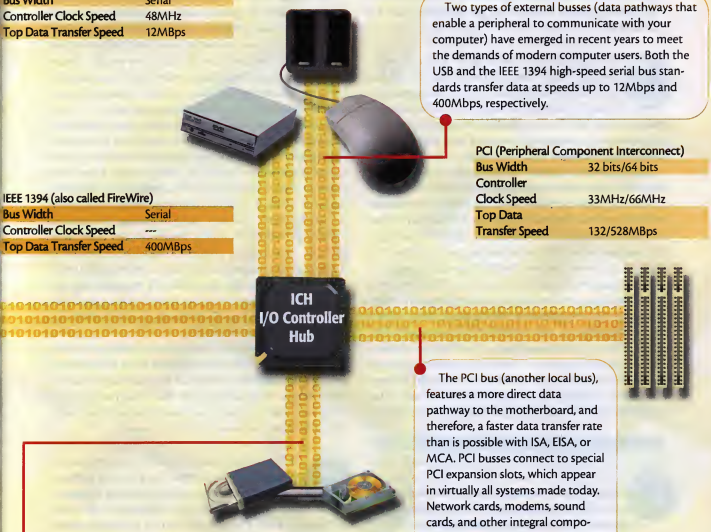
Two types of external busses (data pathways that enable a peripheral to communicate with your computer) have emerged in recent years to meet the demands of modern computer users. Both the USB and the IEEE 1394 high-speed serial bus standards transfer data at speeds up to 12Mbps and 400Mbps, respectively.

PCI (Peripheral Component Interconnect)

Bus Width	32 bits/64 bits
Controller Clock Speed	33MHz/66MHz
Top Data Transfer Speed	132/528MBps

IEEE 1394 (also called FireWire)

Bus Width	Serial
Controller Clock Speed	---
Top Data Transfer Speed	400MBps



The PCI bus (another local bus), features a more direct data pathway to the motherboard, and therefore, a faster data transfer rate than is possible with ISA, EISA, or MCA. PCI busses connect to special PCI expansion slots, which appear in virtually all systems made today. Network cards, modems, sound cards, and other integral components often use PCI technology.

	IDE (Integrated Drive Electronics of ATA-Advanced Technology Attachment)	EIDE (Extended IDE or Fast ATA)	Ultra-ATA/33	Ultra-ATA/66
Bus Width	16 bits	16 bits	16 bits	16 bits
Controller Clock Speed	4.15MHz	8.3MHz	33MBps	66MBps
Top Data Transfer Speed	8.3MBps	16.6MBps	16MHz	33MHz

Need help with your hardware or software?
Looking for simple explanations on technical subjects?
Send us your questions!

Windows 95/98:

I notice after I download Windows Update files to my Win98 system that some files are left in the WINDOWS UPDATE SETUP folder, even after I install the programs/ updates. In fact, the folder is over 5MB in size. Most of the files in question have a .CAB file extension. Can I delete them?

To clarify, the full name of the folder in question is WINDOWS UPDATE SETUP FILES, and Windows Update creates it on your C: drive following your first update. To view its contents, click My Computer, click the icon for your C: drive, then click the appropriate folder icon (you can also find it using Windows' Find function).

CAB (cabinet) files hold other, compressed files Windows needs when you install a program. Windows Update typically puts them in the folder mentioned above when you download updates for programs like Internet Explorer (if you have a zip utility on your PC they may appear as ZIP files rather than as CAB files). It's not unusual for this folder to be 10MB in size or larger.

To answer your question, you won't need leftover CAB files once you've installed the programs they belong to (you might even find a file in that folder titled "This folder is safe to delete"), so you can safely remove them if you've already installed the downloaded update or upgrade. You may want to keep them around for a while after installation, though, in case you need to reinstall an update for some reason. That way you won't have to download the update over again.

Utilities:

When I run ScanDisk on my PC's hard drive, I get a message saying I have lost clusters. The message asks if I want to save the contents of these clusters and informs me that I can use the TYPE command to view them. How do I do this?

Lost clusters are files or file fragments that got saved to your drive without being entered in its FAT (file allocation table, a chart Microsoft operating systems use to catalog the locations of data on hard drives). This is sort of like taking books and stuffing them at random into a library's shelves without entering them in the card catalog. It usually occurs when a program locks up in the middle of an operation, forcing you to reboot.

It's not unusual to lose a few now and then, and although on rare occasions they go hand-in-hand with lost data, they generally are not a serious problem. If ScanDisk finds them frequently, it may be a symptom of poor operating practices (shutting down certain programs without using their EXIT commands, or shutting down your computer without exiting Windows), an unreliable computer, or an unreliable program.

The good news is that in all the years we've been involved with computers, we know of only one case where there was anything worth recovering in a lost cluster. As such, we routinely have ScanDisk and other hard drive utilities not save them. If you do, you'll end up with an increasingly large collection of useless files with extensions like .CHK or ._DD (if you use Norton Disk Doctor) occupying valuable storage space.

If in the past you've frequently said yes to ScanDisk's "Save lost clusters?" question, you may want to take this opportunity to delete yours and reclaim some hard drive space. If you want to play it safe, you can view their contents first using the TYPE command as ScanDisk suggests. TYPE is a DOS command, so you'll begin by getting to a DOS prompt using Windows' Command Prompt (MS-DOS Prompt in Windows Me) command. Click the Start button, point to Programs (and point to Accessories if you use WinMe), click Command Prompt, and a DOS window appears. At the C> prompt, type CD\ and press ENTER to access your drive's root, or main, directory. Next, type **type file0002.chk** or **edit file0002.chk** (for example) and press ENTER.

You can also use text editors such as Notepad to view clusters, although we're willing to bet most will show up as a mix of unreadable characters and seemingly disorganized scraps of text. Click the Start button, point to Programs, then Accessories. Click Notepad, then click File, click Open, and select the file in question.

I have come across three different commands people use to format hard drives before installing or reinstalling operating systems. They are: FORMAT C:, FORMAT C:/S, and FORMAT C:/U. Can you tell me how these differ and what they mean?

PC users use variations of the FORMAT command, a holdover from the days of MS-DOS, to clean data from a hard drive in order to perform a clean OS (operating system) installation. All of them run from DOS

prompts (also known as a command prompts), and require the drive you wish to partition to be visible to (properly connected to and detected by) your PC (hint: does it show up in your My Computer window?).

Also, keep in mind that a physical hard drive can contain more than one partition, or logical drive, and that the FORMAT command will only affect the partition you specify. For example, if you have partitioned your hard drive into two equal sections labeled C: and D:, using the FORMAT C: command will leave the D: portion of the drive untouched.

There are several ways to get to a DOS prompt (we discuss one in the preceding question and answer), and any of them will suffice for formatting floppy diskettes and secondary hard drives. But in order to format the hard drive that contains Windows, you can't be using the OS. Instead, insert a Windows startup diskette in your floppy drive and reboot your PC (you may have created a startup diskette when you first installed Windows, otherwise check Windows' Help feature for instructions). You will most likely receive a DOS prompt that corresponds to your diskette drive (often A:>). Type C: and press ENTER to change to your hard drive's directory, and you are ready to format your hard drive. (*NOTE: As mentioned above, the FORMAT command erases data from magnetic disk drives, and in some cases makes it impossible to retrieve that data. Inexperienced users who don't routinely back up important data should probably avoid using it without expert guidance.*)

The FORMAT C: command is the most basic of the three and prepares the disk to accept new files as if it were empty by re-creating the necessary electromagnetic track and sector markers. Bear in mind that formatting a drive with this command doesn't actually remove the old data, but instead tricks the drive into thinking it's gone. The drive stops keeping track of the names and locations of the files it contains, and from then on can overwrite them as needed.

This standard, or safe, format usually preserves the previous FAT containing the names and locations of the drive's former contents (Microsoft added the safe format provision starting with MS-DOS 5.0). As such, it is often relatively easy for someone with modest data recovery skills and the proper tools to find your old "erased" files, as long as your OS hasn't stored new data over them yet.

FORMAT C:/S does the same thing as FORMAT C:, but the /S is a switch, or code that sets parameters for the preceding DOS command. The letter S stands for system, and tells your OS to format your hard drive but leave it with a rudimentary OS so you can boot from it. The resulting OS will have a text command interface like DOS rather than a GUI (graphical user interface) like Windows, and will present a DOS prompt when the drive boots.

In the third command you mention, FORMAT C:/U, the /U switch stands for unconditional and instructs your OS not to preserve the previous FAT. This makes it significantly tougher to recover old files, even if your drive hasn't overwritten them with new ones. Format help screens often don't even list this command because of its drastic, irreversible nature (it's a use-at-your-own-risk kind of deal).

It's worth mentioning, though, that even this command doesn't give your drive a high-security caliber scrubbing, and someone with serious recovery skills can probably still find some of your old data there until new files take its place. It is a bit faster than a standard format, because it doesn't have to tiptoe around your old FAT, so it may save you a few seconds of formatting time.

One variation of the FORMAT command you didn't mention but is good to be aware of is the FORMAT C:/Q command. The /Q switch activates the quick format function, which assumes that your drive's current track and sector boundaries are good and don't need to be redrawn to the disk's surface. This makes it much faster than running a standard format, as it merely regenerates a blank version of the relatively small FAT and is finished.

If you want to format a drive with the characteristics of more than one variation of the FORMAT command, you can combine switches after the drive letter (such as FORMAT C:/U/S or FORMAT C:/Q/U). There are many other switch parameters, and you can see a list of them along with a bit of information on what they do by typing FORMAT/? at a DOS prompt and pressing ENTER. The parameters available to you vary between different versions of Windows and DOS.

Finally, note that Windows lets you format drives without using DOS commands. Click the My Computer icon on your Desktop, right-click the desired drive, and click Format in the pop-up menu that appears (remember, you won't be able to format the drive or partition that contains Windows using this technique).

Computer Hardware:

Q: *Recently, during startup, my PC gave me a Sync Out Of Range message. Windows started about 10 seconds later, and everything seemed to run normally. It only happened once. Is this something I should worry about?*

A: No. If it persisted and prevented you from working, you'd have to deal with it. But because it didn't, it's most likely nothing to be concerned about.

In order to understand the message and its source, you need to understand a little about how images appear on your computer monitor. An electron beam the size of one pixel (picture element, the smallest portion of a computer monitor image) comes from the back of the monitor and strikes a special coating on the back of the glass causing the desired spot to glow. A signal coming from your PC's video card moves that beam across the screen, creating a line of pixels across the top. Then the monitor shuts the beam off just long enough for the video card to point it back to the beginning of the next line below. It generates the next line and the next, until it has drawn the whole screen.

Typically, this line-by-line construction of your screen takes about 1/100th of a second. Note that the video card must coordinate (or synchronize) its instructions about what color of pixels to draw to precisely match the sweep of the monitor's electron beam across the screen. Of course, there are limits to how fast various monitors can draw each line, and we refer to the range between the minimum and maximum speeds it is capable of as its sync range. If you check your monitor's users manual, it probably reports its sync range by saying something like, "Horizontal sync: 30-70kHz, Vertical sync: 50-180Hz."

The message you received is telling you that the video card asked the monitor to draw a line of pixels faster or slower than it's capable of. There are many reasons for a mismatch between the video card's sync rate and the monitor's capability; usually it's because someone has set the resolution or refresh (sync) rate too high from within Windows' Display Properties window (right-click anywhere on the Desktop and click Properties, or click the Start button, Settings, Control Panel, and Display). If the problem persists, it may potentially damage your monitor, but the good news is that this is an easy problem to solve and is seldom cause for alarm.

Online Communications:

Q: ***I have read in your magazine about deleting cookies, and I tried to delete them from my PC, but one file won't go away. It is labeled "Index," and each time I try to delete it I get an error message informing me that the file " is being used by an other user." Does this mean that someone else is accessing files on my computer somehow?***

A: Almost certainly not. The message merely implies that some other process (most likely another program) is using (or holding onto rights to use) that file. The full name of the file in question is probably Index.dat. Various applications use index files to keep tabs on certain collections of information for quick retrieval. Your browser may be using it to keep track of the cookies sites copy to your system. If this is the case and your browser was running when you tried to delete the file, Windows would likely determine that the file was in use and therefore off limits for deletion. We wouldn't even bother deleting it, as it's probably tiny, and your system would likely regenerate it soon after you deleted it anyway.

By the way, even though cleaning out your PC's WINDOWS\COOKIES folder occasionally is usually a good idea, it can be a bad idea to clean them all out if you don't know what they are for. It's true that some Web sites use cookies to do things such as track your buying and browsing habits without your consent, but in many cases they have functions that are useful to you. For example, some weather-related Web sites use them to memorize where you live so they can bring up your local weather conditions and forecasts automatically each time you visit. Deleting such a helpful site's cookie could disable that custom feature.

More importantly, if you've paid a membership fee to access a site, deleting its cookie could block you from the site's members-only area without paying again or hassling with the company to prove prior payment. A better way to do it is to selectively delete cookies with one of the utilities you'll find at WebVeil's Cookie Tools page (http://www.webveil.com/cookietools.html).

Finally, remember that a byte of prevention is worth a megabyte of cure. Rather than trying to clean up unwanted cookies after the fact, you can have your browser keep an eye out for you and decide yourself which ones make the grade. To put Internet Explorer 5.x on cookie alert, click the Tools menu, then Internet Options, then click the Security tab. Click the Custom Level button, then look for the Cookies option in the Security Settings dialog box. Click the radio button next to Prompt beneath Allow Cookies That Are Stored On Your Computer, and beneath Allow Per-Session Cookies (Not Stored). You can always switch back to the Allow option if you get tired of frequently having to accept or decline cookies manually as you surf the Web, but you'll always know what sites are saving files to your machine.

"Remember that a byte of prevention is worth a megabyte of cure."

Miscellaneous Software:

Q: *I just purchased a new computer. The label said it included Windows 98 Second Edition, Microsoft Works 4.5, and America Online. When I started the computer, I noticed that almost a third of the screen was filled with shortcut icons for Web freebies and software trial offers. Why do computer makers load these unnecessary programs that most of us will never use? How do I clean these useless programs off of my Desktop?*

A: Some of us who look askance at the practice of loading up new computers with unrequested (and in some cases undesirable) software refer to this stuff as "shovel-ware." Companies who engage in this somewhat unsavory practice have a variety of motives for doing so. A common one is using it as a marketing ploy to make you think you're getting incredible value for your money. A simpler one is the money computer makers make from deals with software companies, who in turn hope to get you to buy their products or upgrades of the free ones they give you.

In all fairness, we should keep in mind that in many cases one man's junk is another man's treasure. A trial version of Quicken that's useless to you may be a painless, free, and worthwhile way for someone else to see the power of getting his finances computerized. And, in some cases, computer vendors such as Compaq, Dell, and other heavy hitters include powerful utilities that they've worked with software companies to tailor specifically for use with their hardware.

In any case, these floods of "bonus" applications aren't tough to get rid of, although there is one thing to remember as you begin. Don't delete a program shortcut from your Desktop and think that you've deleted the program. It's still there, and it still takes up valuable hard drive space; you've just made it harder to use.

There are three more effective ways of achieving your goal. The first isn't available in every case, but it's the simplest. Click the Start button, point to Programs, and point to the name of the application you want gone. Many Windows programs create their own sub-menus on your Programs menu that include several options, one of which is often the program's own uninstall option. If this is the case, click the appropriate command and relax while the program expunges itself from your PC.

If no such option exists, go to plan B. Click the Start button, point to Settings, and click Control Panel. Double-click the Add/Remove Programs icon, click the name of the program you're after in the list of installed applications to highlight it, then click the Add/Remove button. In some cases you may need to remove a program's directory (folder) from your PROGRAM FILES folder or clean up a few other miscellaneous details, but the uninstaller should prompt you to do so if necessary.

If you can't take care of business by either of those methods, you may need to buy a commercial uninstaller such as Norton CleanSweep 2001 ($39.95; 800/441-7234, 408/517-8000; http://www.symantec.com) or EasyUninstall 2000 ($29.95; 800/645-3649, 952/937-5161; http://www.ontrack.com). These programs give you lots of options in removing unwanted programs from your system and are must-have items for fastidious users who want lean, clean systems.

Updates:

In the April 2001 installment of Q&A, we told a reader having trouble printing his PC's BIOS (Basic Input/Output System) settings that he might "...have to either hand copy BIOS settings or use a utility program such as Norton SystemWorks, Fix-It, or other utility that includes a BIOS capture function. These allow you to save the BIOS setting to disk and/or print them out." We received letters and e-mail messages from a number of readers who already use Norton SystemWorks and wanted to know how to use it to print a copy of their BIOS settings.

To clarify, SystemWorks does capture some basic BIOS settings, such as the type and version of your BIOS, active disk types, and others, but it doesn't gather all this information neatly into one place. It also doesn't allow you to print a copy of all your BIOS settings for your records. However, as we indicated in April, SystemWorks can save your BIOS settings to a floppy diskette. More specifically, it lets you create a rescue diskette with this information that you can use to restore your system should it become incapacitated for some reason. So although you can't view the file and read the captured settings, they are there as a sort of insurance policy.

If for some reason you need to record your BIOS settings on paper rather than saving them to a diskette, the bottom line may still be if you can't print 'em out, write 'em by hand. ■

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Answers to users' most common questions.

CD-RW Drives

FAQ: ***What is a CD-RW drive?***

Short for compact disc-rewriteable, a CD-RW drive can read regular CD-ROMs and audio CDs and lets you record (or "burn") music, data, and images from your computer onto special optical discs called CD-Rs (compact disc-recordable) or CD-RWs. You can then play these discs in a CD-ROM drive or audio CD player.

FAQ: ***Why would I want a CD-RW drive?***

Most CD-R and CD-RW discs can store up to 650MB of data, making them ideal for storing large files and creating backup copies of your licensed software and irreplaceable data. You can also use a CD-RW drive to create a customized CD of your favorite songs that you can play in any audio CD player. And unlike CD-R drives that only let you record data once to a special optical disc, CD-RW drives let you rewrite hundreds of times over old data on special discs.

FAQ: ***What do the X's in a CD-RW drive's specifications mean?***

When you examine the specifications for any CD-RW drive you'll see three numbers, each followed by an X, such as 4X/4X/24X. These numbers stand for the drive's write, rewrite, and read speeds, respectively, and each indicates how many times faster the drive does them than the 150Kbps (kilobits per second) data transfer rate of first-generation CD-ROM drives.

FAQ: ***How do CD-RW drives record data?***

CD-RW drives record data in one of three ways: disc-at-once, track-at-once, and packet writing. The disc-at-once method writes a collection of files of your choosing in a single, continuous session and then closes the CD-R or CD-RW. Once a drive closes a disc, you no longer have the option of adding data to a CD-R, and you can only add data to a CD-RW by first erasing its contents.

With the track-at-once, or multisession, method, the drive writes content in single sessions, leaving gaps between files like the gaps commercial audio CDs have between tracks. Track-at-once keeps the disk open so you can add more information later before closing the CD-R or CD-RW. Some drives and CD creation applications also let you use the packet writing method, in which you create a CD you can use to save or copy files to, then move or delete them just as you would on your hard drive.

FAQ: ***Can any CD player read an optical disc created with a CD-RW drive?***

Most CD players and CD-ROM drives can read CD-Rs, but this isn't the case with CD-RWs. Also, be aware that before you can use a CD player or CD-ROM to access a CD-R or CD-RW, you must first close the disc to further recording sessions.

FAQ: ***Do I have to use the recording software that came with my CD-RW drive?***

Most drives will work with other recording applications if you want more options than are available with the software that came with your drive. Roxio's Easy CD Creator 5 Platinum, for example, costs $100 and has options for faster data backup and video burning. Other options include Ahead Software's Nero ($70) and Golden Hawk Technology's $50 CDRWIN (now in version 3.8D).

FAQ: ***What kind of CD-RW drive should I get?***

If you just want to burn CDs occasionally and don't require fast writing and reading speeds, you can probably find an internal IDE (Integrated Drive Electronics) 4X/4X/24X CD-RW drive priced from $100 to $150. For portability and easy installation between multiple PCs, a USB (Universal Serial Bus) CD-RW drive such as Iomega's $240 external USB drive may be the way to go. Serious CD burners can check out high-performance drives such as QPC's $329 Que! Fire external 12X/10X/32X FireWire CD-RW drive, or the 12X/8X/32X CD-Writer 9600si internal SCSI (Small Computer System Interface) drive from HP ($295). Before you rush out to purchase one of these speedy drives, however, be aware that you'll probably also have to buy and install a special adapter card to give your PC SCSI or FireWire (IEEE 1394) capability.

FAQ: ***How much do blank discs cost?***

CD-R and CD-RW disc costs have dropped dramatically since CD-RW drives first appeared on the market in the late 1990s. Today, you can purchase CD-R discs for less than $1 each, and CD-RW discs are often available for around $2 each. ■

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Warranty Worries

I bought a Hewlett-Packard Pavilion 4453 and later had a 20GB hard drive installed. Recently, my HP stopped recognizing the second hard drive. My local computer store says I have a bad secondary IDE (Integrated Drive Electronics) port on the motherboard. I've tried calling the phone number I received with my extended warranty plan several times, but the company refuses to honor the terms of the agreement. It insists that the warranty doesn't cover upgrades, despite the fact that the failed component is part of the motherboard.

Connie Clinton
Iowa Falls, IA

We contacted HP's public relations department, and the case made its way to Andy Cooper, HP's quality case manager. Cooper says HP partners with a company called Aon for its extended warranty services. Cooper called Aon, which advised him to have Connie call again, but she was refused service. We called Cooper again, and he arranged to send Connie a new Pavilion 6746 in exchange for her old system. Connie received the new PC on Feb. 15, 2001, but the second hard drive from her old system was too big for the new system. Connie also incurred expenses related to the new PC and the in-home service plan. Tammy Porter, business development manager with HP contacted Connie on February 22, and Connie explained that the expenses had depleted a fund she set aside to buy a bigger monitor. Porter called Aon. Aon apologized and sent Connie a new 19-inch monitor to make up for the added expenses. HP let her keep the old system and sent a $100 reimbursement for her last computer bill, which totaled $72.08. HP and Aon are also providing a Pavilion Support Pack to cover the new PC.

In September 2000, I bought a new PC directly from Compaq. One day while booting the system, I received a DOS prompt with an error saying that there was a resource conflict. When the system finally booted, it didn't detect my modem, and I couldn't get online. On Jan. 18, 2001, I contacted Compaq about the problem. After trying several things, it decided to turn the case over to its engineers, who would call me back at some point. I have called Compaq weekly ever since, and Compaq now says my problem is in "open research." I have asked for a new computer or a refund, but Compaq says it cannot do either one.

Lea VanderBoom
Palacios, TX

We left a message with Compaq's Public Relations department, and David Albritton from Compaq's public relation's department called back shortly thereafter. Albritton contacted customer service and worked out a refund for Lea so she could buy a new PC from Compaq. Lea received an Airbill to return the old PC on March 6, 2001, and received the new PC on March 14, 2001.

I've been using McAfee's Oil Change (formerly Cybermedia) for some time. Recently, my system crashed in the middle of an update. After restarting the system, I ran First Aid and it returned a message that the Genobj.dll file was missing. It recommended uninstalling and reinstalling Oil Change. After doing so, I received the same error. I went to the Oil Change homepage, but I couldn't even access troubleshooting information without my username and password. I know my username and password are correct, but I still can't access the Web site. I've been unable to get any help through e-mail or by phone.

Sue Miller
Finleyville, PA

The problem here wasn't with Oil Change, but rather with First Aid. We found an old Internet post that's still relevant. First Aid uses an old profile for Oil Change that expects to find a Genobj.dll file that newer versions of Oil Change don't use. Although it was reporting an error, Oil Change was running fine. McAfee sells two versions of Oil Change: a boxed product and an online service. Both require a username and password, but because the online service is different from the boxed product, you must buy separate usernames and passwords to access the online service. Sue was trying to use the username and password from her boxed software with the online service.

Are you having trouble finding a product or getting adequate service from a manufacturer? If so, we want to help solve your problem. Send us a description of the product you're seeking or the problem you're having with customer service. In billing disputes, include relevant information (such as account numbers or screen names for online services) and photocopies of checks. Include your phone number in case we need to contact you. Letters may be edited for length and clarity; volume prohibits individual replies. Write to: **Action Editor, PO Box 85380, Lincoln, NE 68501-5380.** Or send e-mail to **editor@smartcomputing.com.** Or fax us at **(402) 479-2104.**

daemon—A program that runs in the background without being triggered by a user. Daemons might be stimulated into action by an event, or they might operate according to a timed schedule. Some word processing programs have a daemon feature that automatically saves an open document at predetermined intervals.

DLL (dynamic-link library)—An executable subroutine stored as a file separate from the programs that may need to use it. DLLs, which allow for the efficient use of memory because they are loaded into memory only when needed, are used extensively in Windows operating systems.

FAT (file allocation table)—A file method that keeps track of the contents of a disk. FAT32 lets users store more data on hard drives and use bigger drives. FAT16, the previous version of FAT, used 16 bits to address clusters, which limited the size of hard drives to 512MB, or 2GB if the drive were partitioned into four 512MB partitions. FAT32 supports drives as large as 2TB (terabytes). FAT16 uses 32KB clusters to store data, while FAT32 uses only 4KB.

jumper—An on/off switch, once extensively used on circuit boards to alter hardware configurations, that is composed of wires and a small metal piece. To turn the system on, the metal piece is placed over two of the wires, which connects the wires and makes the circuit complete. When the metal piece is removed from the two wires, the wires do not connect, thus the circuit is not complete and the system is off.

latency—The time difference between when a computer requests data from a storage device and when that device finds and delivers the information. It's also the downtime spent waiting for a response from a network.

null-modem cable—The cable used to directly connect two computers without using a modem. The null-modem cable crosses the sending and receiving wires so the wire used for sending data from one computer is the same wire used to receive data in the other computer. Also called an RS-232 cable.

spyware—Software that tracks your browsing behavior without your knowledge. Spyware can find its way onto your PC in many ways; it may manifest itself as part of a virus or Trojan horse. Recently, however, spyware has found its way onto computers through legitimate software and applications that also track your browsing habits. Companies, such as Double-Click and RealNetworks, have come under fire in spyware-related incidents.

stateful inspection—One of many firewall technologies that protect a computer network from access by an unauthorized party. Stateful inspection monitors all incoming data packets and tracks them back to their source, checking to see if the source address matches the addresses of any recent outgoing requests for data.

switch—A letter or number that tells the computer to perform a special variation of the command entered. Switches, used extensively in DOS, usually consist of a slash (/) and a letter, such as */x*, where *x* is the letter of the switch you want to use.

UXGA (Ultra Extended Graphics Array)—A term used to describe a monitor with 1,600 x 1,200 resolution and 16.8 million color display capabilities. Although many monitors come with UXGA, your graphics card may not support the resolution or color rendering capabilities, and you may not be able to view a UXGA-quality display.

wait state—A pause in a microprocessor's clock cycles that allows for differences in speed between one component and others in a computer (such as input/output devices or RAM). Wait states are common in systems where the microprocessor has a much higher clock speed than other components, requiring the latter to "play catch up." During a wait state, the microprocessor idles for one or more cycles while data comes in from RAM or other components. Although unnoticeable to users, this idling can affect a system's performance because it involves the microprocessor's clock speed; if clock speed is reduced, system performance will slow. Wait states also are not uncommon between buses and expansion cards, where the expansion cards run slower than their buses.

New Terms

SAO (session-at-once)—A method of burning a CD-R (CD-recordable). It's similar to the DAO (disc-at-once) method in that the lead in, data or music tracks, and lead out sections are burned as a single entity, without switching off the write laser. However, the SAO method does not automatically finalize the CD as does the DAO method, leaving the disc open for more data sessions as space allows.

viral marketing—A somewhat derogatory term for word-of-mouth marketing. The speed of e-mail has made word-of-mouth advertising so effective that messages spread like a virus.

Turn Your Garbage Into Someone Else's Gold

Hazardous Materials In PCs Mean You Can't Just Toss 'Em Away

WE LIVE IN THE LAND OF DISPOSABLE DIAPERS and throwaway cameras, so it really wasn't a surprise to hear recently about the newest disposable wonder: cell phones. Telespree Communications, a wireless provider headquartered in San Francisco, is introducing multicolored disposable phones that you'll soon be able to pick up at your neighborhood convenience store. The phones have separate cartridges that offer prepaid amounts of calling time; you buy 'em, use 'em, and toss 'em away. All of which makes us wonder, can the disposable PC be far behind?

You laugh, but actually, we could probably use a *good* disposable (read environmentally friendly) PC. Now that about two-thirds of American households have bought computers, the multi-PC home is quite common. As more people buy a second, third, or even fourth computer system, they're relegating older units to the kids' room, closets, and that final resting place, the garage. Just take a look around—these things are piling up faster than the debt on household credit cards.

The problem of how to properly get rid of all this high-tech "garbage" has some people worried. After all, PCs aren't like newspapers that decompose harmlessly when you throw them away. They take up lots of space, and they contain some hazardous materials.

The EPA (Environmental Protection Agency) says that the glass on a typical monitor may have a lead content as high as 25%. That may be 10 pounds or more of the deadly stuff, in just one screen. It's definitely not the sort of thing you want piling up by the ton in your local landfill.

In a study on electronics recycling conducted by the Massachusetts Department of Environmental Protection last year, nearly 40% of the state's residents who owned computers said they had a PC in their home that they had stopped using. Nearly half of those people reported they stopped using a computer because they upgraded to a new system. With more than 120 million PCs sold each year, the problem of what to do with those old units isn't going away. Technology isn't going to stop advancing, and people aren't going to stop upgrading. Eventually people are going to get tired of shoving old systems into their closets and garages and are going to want to get rid of them.

So what's the solution? You can always try selling your old computer online or in your local paper, but another option may work out even better: just give it away. That old PC that's taking up space in your closet may make a world of difference to some other person who can't afford the latest digital gadgetry. So if you don't have a relative or friend who could use your computer, contact one of the dozens of organizations nationwide that match up donors of old computers with needy individuals and groups.

One example, Share The Technology, is a nonprofit New Jersey corporation that maintains a list on the Internet that matches up PC donors with people requesting computers (http://sharetechnology.org). Its estimates suggest that up to 20 million PCs are taken out of service in the United States each year but only about 10% of those PCs get recycled. The rest end up either in storage or in the garbage.

The National Cristina Foundation (http://www.cristina.org) helps secure computers for people with disabilities and the economically disadvantaged. Dr. Bruce McMahan started the whole thing by giving a computer to his daughter's special education class; NCF has provided computer donation services for more than 15 years.

There are many similar organizations available online that will gladly help you get rid of your old equipment. Instead of tossing your old system and contributing to a growing environmental problem, go to one of these sites and let someone else put your PC to good use. You can find these organizations by using your favorite search engine or by visiting a charity portal such as Givespot.com (http://www.givespot.com). This site and others like it have links to many worthwhile sites that specialize in computer donations and recycling.

If you're one of the millions of people who are using old computer systems as digital dust collectors, check out these sites. Not only will you free up some storage space by donating your PC, but you might just help someone else discover computing. And that's not a bad use for any old technology. ■

Illustration: Dave Hicks

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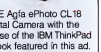

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